It's up to you

In a modern society few would question that education is an important phase of the development and growth of an individual — socially, economically, and politically. To be successful our society needs people who are skilled in the workings of economic, political, and social organizations. Getting job skills is important, but just as important are the skills of getting along with people — knowing how to get involved in society's work and understanding its history, art, science, and literature.

Portland Community College is organized to assist each student to achieve his educational goals. Because of the wide diversity of its student body and their needs, the college offers a wide selection of courses and programs.

Your success at Portland Community College will be determined by how well you plan your program in terms of your goals and your interests. Desire to succeed is still one of the keys to accomplishment.

Staff members at the college are selected because of their knowledge, teaching skills, and commitment to the community college concept. All are here to help you; they want to see you succeed.

Portland Community College is dedicated to helping you; however, no one can give you an education — you must put forth the effort — you must do the learning. The college will provide you with good instructors, a good learning environment, instructional materials, and counselors to help you in the process.

If you need any assistance, have a complaint or a suggestion, see your instructor, counselor, administrator, the president, or visit the information centers. Let us know how we can help you and improve the educational process at Portland Community College. You — the students — are the reason the college is here. Make the most of it.

Amo DeBernardis, President
How to enroll

Start planning now. Select a program which meets your needs, then follow the enrollment steps listed below.

If you are in high school, talk to your counselor. He/she has application forms and other information and can arrange to have your high school transcript forwarded to PCC.

If you are beyond high school, call or visit a PCC counselor or the Admissions office at PCC Sylvania (244-6111) or at Cascade (283-2541).

Anyone may enroll at PCC; a high school diploma is not required. In many cases students can complete high school work at the college. To make sure there is room in the program of your choice or to determine if your chosen program has special admission requirements, contact the PCC Admissions office as soon as possible. Students interested in a career in the health professions should contact the Health Professions Admissions office.

Complete an application form, (available from any high school counselor, the Admissions office, or the college information centers) and return it to PCC either in person or by mail with a $10 (non-refundable) deposit as soon as possible. If your application is received at least two weeks in advance of appointment registration, you will be assigned a registration time according to the date your application is received. Otherwise, you may register any time during open registration.

Forward a copy of your transcript(s) to the Registrar if you have attended high school and/or another college.

Transfer of the $10.00 tuition deposit. Although the $10.00 tuition deposit is non-refundable students may, upon request, transfer the tuition deposit to the next immediate term. (If the request is made during spring term, the next immediate term may be either the summer or fall term). Transfer of the tuition deposit will be put into effect only if: 1) the student has not completed the registration process for the term in which the deposit was submitted; 2) the request for transfer is made to the Registrar’s office either in person or in writing by the end of the fourth week of classes of the term for which the deposit was submitted.

By following the procedure outlined above, the student will be notified by mail that his/her tuition deposit has been transferred, and he/she will be issued a new registration appointment time for the appropriate term.

If you plan to take physical education, it is recommended that you have a physical examination by a licensed physician; a health form will be mailed to you and should be returned to the chairman of the Physical Education department.

Aptitude and interest testing is available to help you decide upon the courses or program best suited to your needs and plans. Contact a PCC counselor. English and mathematics placement exams are offered to help you enroll in the appropriate class.

Registration instructions will be mailed to you. All new students will register according to the date their application is received.

Tuition is payable each quarter before you begin classes unless other arrangements are made in advance. Tuition may vary for special programs. There is no student body fee. Cost of books and supplies will depend upon your individual program. See program information in this catalog for special fees. Lab fees are charged for some classes and are not refundable unless the class is cancelled by the college.

Tuition Rates 1975-76

Resident of PCC District—1-8 credits $11.00 per credit hour. 9-18 credits $99.00. ($11.00 for each additional credit hour over 18).

Resident of Oregon outside PCC District 1-8 credits $21.00 per credit hour. 9-18 credits $189.00. ($21.00 for each additional credit hour over 18).

Non-Resident of Oregon—(Includes foreign students) $31.00 per credit hour. Tuition rates are subject to change without prior notice. Tuition for 1976-77 is expected to increase 10%. Contact the Information Center, 244-6111, for the current tuition rate.
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Commitment of the College

Portland Community College is a comprehensive community college serving a five-county region of 650,000 persons; the college district comprises a large segment of the metropolitan area surrounding Portland, Oregon's largest city. PCC became an Oregon community college in 1961; the college district was established by vote of the residents in 1968.

The Open Door Educational Shopping Center

The purpose of Portland Community College is to offer learning opportunities to everyone regardless of his or her prior educational experiences.

PCC is called the "Educational Shopping Center" because its plan of organization, its facilities, and its programs are designed to enable you to plan a program which meets your individual needs. When you find your major interest, PCC counselors and your department advisor will help you plan a program to achieve your goals. Here you are encouraged to seek out your own interests, to learn at your own pace, and in your own individual style. You may leave for other opportunities in work or study, then return.

Portland Community College is committed to total education and life long learning. A PCC student never "completes" his or her education. The college is continually involved in discovering and meeting the needs of various community groups. Satellite centers are being developed so that education programs are available near to the homes of all persons in the district. Enrichment, skill upgrading, and in-service programs are important priorities of PCC's comprehensive "educational shopping center."

Dignity of Choice

At PCC we assist each person to find a place in society which best fits his/her needs, interests, and abilities; no distinctions are made between programs; what is good for one may not be good for another. Each student is encouraged to excel and to develop personal performance levels, no matter what career he/she has chosen.

Students

PCC serves more than 53,000 persons each year. You will meet every kind of student here, from just-graduated high school seniors through young workers seeking new skills and information in their career areas, to older persons studying to enrich their later years.

Portland Community College welcomes the enrollment of foreign students interested in career programs. Foreign students wishing a college transfer program are encouraged to first consider a four-year institution.

Staff

There are nearly 800 full-time staff members serving PCC students. Each one is highly qualified and has been carefully selected. At PCC our full-time staff stands ready to assist any student at any time. Skilled counselors are available to each student to find the solutions to any problem, personal or career planning.

Programs

Courses are organized and integrated into a broad variety of career programs. At PCC students may choose from associate degree and certificate career programs, college transfer programs, special interest and enrichment courses, apprenticeship programs, Management/Supervisory Development programs at college centers or in-plant or high school completion. More than 100 advisory committees selected from business and industry help guide PCC programs. Because of this close association with business and industry, PCC can be effective in assisting you to find work in your choice of areas. A placement office is available to help you with contacts and potential positions.

Facilities

The campus of Portland Community College is the total college district. PCC is wherever students are learning. There are seven educational centers operated by the college and twelve community centers operated by PCC and the school districts within the college district boundaries. Each PCC center offers a variety of courses plus special services designed to meet the needs of the surrounding community.

Sylvania
12000 S.W. 49th Avenue
Portland, Oregon 97219
244-6111

Cascade
705 N. Killingsworth
Portland, Oregon 97211
283-2541

Hillsboro Center
330 North Lincoln
Hillsboro, Oregon 97123
648-8928

Multnomah Center
1736 S.W. Alder
Portland, Oregon 97205
243-1017

Ross Island Center
049 S.W. Porter Street
Portland, Oregon 97201
244-6111

Rock Creek
N.W. 185th and Springville Road
Portland, Oregon (to be open January 1976)

Southeast Center
3600 S.E. 79th Avenue
Portland, Oregon 97206
777-3387

St. Helens Center
185 South 13th
St. Helens, Oregon 97051
397-1311

General Information

Accreditation — Portland Community College is accredited by the Northwest Association of Secondary and Higher Schools.

Admissions and Registrar — The office of Admissions and the Registrar is located at Sylvania, room CC B31, and handles admission procedures and quarterly registrations. Students interested in health careers should contact the Health Professions Admissions Office.

Attendance — Absence due to illness or strictly unavoidable circumstances may be excused by the instructor. Absences incurred by participation in field trips, intercollegiate games, or trips arranged by the college may be excused if such trips have been scheduled by other instructors. Excuse for absence does not relieve you of the responsibility for completing all course work missed.

Auditing a course — You may audit a general studies class for no credit or grades at regular tuition. Arrangements for audit must be made with your instructor at the time of registration.

Course changes — Approval of your advisor and of the instructors involved is needed prior to changing courses; deadlines for changes are listed in the Calendar of Instruction (inside back cover) and in the schedule of classes.

Course content guides — for many programs are available in the library and in some cases are on sale in the bookstore.

Credit by examination — You may receive college credits by challenging courses through examination. Contact the Registrar for procedures. You should check with the institution to which you will be transferring to see if they will accept the credit. Portland Community College will grant academic credit to students successfully passing a CLEP examination under the
provisions of the established policy. Students will be limited to a maximum of 45 units of credit from CLEP test scores. Contact the Registrar for procedures.

Credits — In general, a class meeting one hour a week for one term yields one credit; a class meeting three hours a week yields three credits. Laboratory and certain technical courses may vary from this pattern.

Degrees, Diplomas, Certificates — Associate degrees of applied science and of arts or of science are awarded to Portland Community College students who successfully complete the following requirements:

**Associate of Applied Science Degree** — a program for preparation of job entry skills.
- complete the approved course work in the major field.
- complete at least 18 quarter hours of general education or approved equivalent.*
- maintain a grade point average of 2.00 (C average).
- attend Portland Community College at least two terms including the last term before the degree is conferred and accumulate at least 30 quarter hours of satisfactory work.
- all credits must be transferable to receive degree.
* Veterans or those students over age 25 may waive the physical education requirement.

Certificates may be awarded in most career-technical programs to those students successfully completing the prescribed course of study. The departments recommend successful applicants for the appropriate award. A student must maintain a grade point average of 2.00 (C average).

**High school diplomas** may be earned through work completed at PCC. Contact the high school completion counselor to work out a specific program.

Applicants for degrees are to complete the forms available in all counseling and registration areas.

**Class load** — If you want to finish an associate degree program in two years, you should schedule an average of 15 credits hours a term to accumulate 90 hours in two years. This would also give you junior year standing when transferring to a four year institution. If you plan to take more than 19 hours any term, it is recommended that you first consult your department chairman or division dean.

If you must work part-time, remember that many classes require two hours of preparation for each class hour; you will need to adjust your work schedule to provide adequate study time or register for fewer course hours per term.

In order to receive full benefits such as Social Security many agencies require a student to be enrolled for 12 credit hours.

**Grading system** — Grade points are computed on the basis of four points for each term hour of A, three points for B, two for C, one for D, and zero for F. A grade point average (GPA) is found by multiplying the number of credit hours for each course by the number of points for the grade and then by dividing the total points by the total number of hours. Some courses are offered on a pass/no pass basis. Students may also receive an "incomplete" (I) or a "course in progress" (CPI) designation. See your instructor for assistance. An "X" designation indicates there is no basis for grade.

Grade reports, transcripts, certificates, degrees, or other information may be withheld if the student has not complied with PCC regulations or has not satisfied his/her financial obligations to the college.

**Graduation** — Formal graduation ceremonies are held once each school year in June. Students may participate in the ceremonies even though they may have received their certificates, diplomas, or degrees at any time during the preceding four quarters. You must petition to graduate at the beginning of the term in which you plan to complete your program; deadlines for submitting petitions are fall term December 1, winter term March 1, spring term May 1, and summer term August 1. The petition should be filled out carefully; the diploma will reflect exactly the name and degree you list. Summer, fall, and winter degrees normally are sent out one month after class closure. Petitions will be available during registration periods in registration areas, in the Registrar's office, at all college business offices, and in the offices of the division deans.

**Placement tests** — To help you enroll in the appropriate mathematics and English courses, placement tests are given prior to registration. See a counselor for details. To speed your registration, take the exams prior to entering the registration lines.

**Transcripts** — To obtain a transcript of classes completed at PCC, fill out a transcript request form in the Business office. There is a $1.00 charge for the first copy and 50¢ for each additional copy ordered at the same time. The transcript will be mailed within one week. When requesting transcripts or other information refer to your Social Security number; it is your student number.

**Transfer** — See College Transfer Programs section in this catalog for basic information. See a counselor for help in planning your college transfer program. Up to 108 quarter hours of work toward a baccalaureate degree may be transferred to Oregon four-year accredited institutions.

**Withdrawal permitted** — You may withdraw from a class at your own discretion until the time of final examination; if done before the fourth week of a term, no class grade is recorded. After the fourth week, a "W" (for withdrew) is placed on your grade record. Withdrawal is accomplished by application to the Registrar, in person, or by mail. Tuition refund depends upon the time the application is filed; consult the Registrar. Lab fees are not refundable unless the class is cancelled by the college.

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**Counseling Services**

Professionally trained counselors are available to assist students and prospective students in the solution of problems and in the development of personal and social skills, career development and exploration, and assessment of interests and abilities, as well as family, personal, and social problems. Counselors are also a good source of information about the school and its programs, transfer curricula, community resources, etc. Special assistance is available to foreign students and high school completion students. The main counseling centers are located in room B9 of Cascade Hall at the Cascade center, and in room B31 of the College Center building at Sylvan Heights. Help is available at the center nearest you, an appointment can be arranged; ask your instructor or any staff person to help.
Student Financial Services

If you need financial assistance to attend PCC, contact the Office of Student Financial Services at Sylvania, CC East Mall, and at Cascade, Cascade Hall.

To get financial help
1. Apply for admission to Portland Community College (see page 1). Important: To be eligible for financial aid, a student must be enrolled each term for at least six credit hours.
2. If you're an entering Oregon freshman, obtain financial aid application forms and Parent's Confidential Statements from high school counselors.
3. If you're a returning, transfer, or non-resident freshman student, obtain financial aid application forms and Parent's Confidential Statements or Student's Financial Statements from PCC Student Financial Services office in December.
4. A separate application form is necessary for making applications for a Guaranteed Student Loan. Oregon residents may apply for these loans through the office of Student Financial Services.
5. Application preference date
   All application materials should be received by the PCC Student Financial Services office by February 1, to ensure first consideration for available funds.
   Applications will be accepted, however, at any time after the preference date of February 1, and awards will be made until all available funds are exhausted.
   To meet this February 1 preference date, the Parent's Confidential Statement or the Student's Financial Statement should be submitted to the College Scholarship Service by December 15.
6. Award Notification
   You will be notified by letter telling whether or not you qualify for financial aid. Notification will be made in late spring or early summer.
7. To be maintained under financial aid, you are expected to perform acceptable college work and make normal progress in your program of study. A student who does not meet the above criteria may have their financial aid awards reviewed each term.

Types of Aid

College Work-Study Program
Under this program, Portland Community College is authorized to provide employment for students eligible to participate in the program. Employment will be either on-campus or with specified eligible off-campus, non-profit agencies. Under this program a student may work up to forty hours a week.

Eligibility: A student must be
1. A citizen or national of the United States.
2. From a low-income family.
3. In need of employment in order to pursue a course of study.
4. In good standing and capable of maintaining good standing while employed.
5. At least a half-time student (six credit hours or more) or admissible to post-secondary institutions.

Pay Scale
In general, the rate paid to students will be at the going rate considering the type of work performed. Minimum salary rate will not be less than $2.00 per hour.

Although preference must be given to students from low income families, any student in need of financial assistance to remain in school is eligible to apply for the College Work-Study Program.

Supplemental Educational Opportunity Grant Program
The purpose of this program is to provide educational opportunity grants from $200 to $1500, with a maximum of $4000 for under-graduate work, to students of exceptional financial need who would be unable to enter or remain at Portland Community College without this financial assistance.

To be eligible to receive a grant, a student must be a citizen or national of the United States, accepted for enrollment as at least a half-time student, show evidence of academic promise, and provide proof of exceptional financial need.

Emergency Loans
A number of loan funds have been established to aid Portland Community College students needing money for emergency purposes for short periods of time. Loans of minimal amounts may be granted to students in good standing. No interest is charged if the loan is paid in full by the end of the term in which the loan is made. Co-signers are not required. Term: first-year students are not eligible to borrow from these funds.


* Donations to these funds can be made through the Student Financial Services office. The office would be happy to create new funds for voluntary donations.

Other funds available to students with specific needs include: Jackson Foundation Scholarship, V. A. McNeil Hotel-Motel Scholarship, St. Vincent Medical Staff Loan/Grant, Herbert Thatcher Loan/Grant, National Cash Register Loan/Grant, Mabel Bliss Scholarship Fund, Kurt Schlesinger Scholarship Award.

Employment Service
Students are encouraged to earn as much of their college expenses as possible. In addition to the College Work-Study program, Portland Community College maintains a placement office to aid students in locating summer and academic year work with the college or off-campus employers. Any Portland Community College student, either part-time or full-time, is welcome to use the placement service.

Guaranteed Student Loan Program
Portland Community College participates in the State Guaranteed Student Loan Program through which students may borrow up to $1500 a year from a participating lending agency which could be a commercial bank, savings and loan association, or credit union.

Repayment begins the first day of the tenth month after the student leaves school. For a student who qualifies, the federal government will pay the seven percent interest until the repayment period begins.

HEW Nursing Loan Program
Eligible full-time and/or half-time students in the associate degree nursing program may borrow up to $2500 per academic year (and an aggregate of $10,000) at a three percent rate. Interest and repayment do not begin until nine months after the student ends his/her studies.

Up to 85 percent of a student's loan may be forgiven if the student works for a total of five years as a nurse in a public or private nonprofit hospital or health service. This forgiveness is earned at the rate of 15 percent for each of the first three years of service and 20 percent for each of the fourth and fifth years.

The 85 percent forgiveness can also be earned in a three-year period if the employment is in an eligible hospital which has been identified as having a shortage of nurses.

HEW Nursing Scholarship Grant Program
This program has been established to provide grants to eligible full-time or half-time students in the associate degree nursing program who have exceptional financial needs. Grants may not exceed $2,000 for a twelve-month period.

Law Enforcement Education Loans
Law Enforcement Education Grants
Students now working as full-time employees of a law enforcement, corrections, or criminal justice department are eligible to receive tuition and book expenses under this program. Arrangements should be made several weeks in advance of registration.

National Defense Student Loan Program
Eligible half-time or full-time undergraduate students may borrow up to $2500 during the first two years of undergraduate study with an aggregate total of $5,000 for undergraduate work.

The repayment period and the three percent interest do not begin until nine months after the student ends his studies.

If the borrower becomes a full-time teacher of handicapped children or a teacher in a school with a high enrollment of students from low-income families, 15 percent of the total loan shall be forgiven for the first and second years of service, 20 percent for the third and fourth years, and 30 percent for the fifth year.

Fifteen percent of the total loan will also be
forgiven for each year of teaching service in a preschool program.

Twelve and one-half percent of a borrower's loan will also be forgiven for each year of military service in an area of hostilities which qualify for special pay.

OSSC Community College Grant Program
OSSC Need Grant Program
This is a state of Oregon program for students with exceptional financial need. Awards under this program may range up to $500 per academic year. Applicants must be legal residents of Oregon.

Tuition Loans (Deferred Tuition)
Students may pay the major portion of their tuition on an installment basis provided specific arrangements are made with the Student Financial Services office at least one week prior to registration. Complete payment of tuition may not be deferred past the end of the term.

Tuition Waivers
A limited number of tuition waivers are awarded to those students who meet the requirements of proven financial need. Any student, part-time or full-time, is eligible to apply for a tuition waiver if he is a resident of the Portland Community College District. Waivers may be renewed each term if need continues and if the student's record indicates that aid is justified.

Basic Educational Opportunity Grant Program
These grants are available to students who began their post high school education after April 1, 1973, and who are attending on a full-time basis. Availability in amounts ranging up to approximately $1,400.

Applications are available in the Student Financial Services office at PCC, high schools, and public libraries.

Veterans Benefits
See the veterans counselor at Sylvania, CC West Mall, or Cascade, SU C20, prior to enrolling at PCC. Applications for benefits should be submitted four weeks prior to enrollment. There will be a delay in allowances for applications received at a later date.

Each veteran receiving educational benefits must make sure that the college receives two copies of the Certificate of Eligibility. Benefits cannot be received until this is done. See the veterans counselor for the specific procedure which you must follow.

You are responsible for notifying the veteran counselor of any change in your program at any time. This includes changes in classes each quarter, withdrawing from individual classes, withdrawing from school, adding classes, or any other change. This must be done in writing on appropriate forms.

A veteran's benefits are sometimes in jeopardy because the veteran has not followed procedures. The Veterans Administration requires certain information from the college which cannot be supplied on time with-
students in the food service programs. Cascade and the Ross Island Center each have a cafeteria and vending machines.

Housing — Most students will commute to PCC every day; adequate private housing, both board and room and apartments, is available in the area. Bulletin boards at Sylvania and Cascade have information on nearby housing.

Information Centers — The information centers located on the mall of the College Center building, in the mall of the Health Technology building, and at the Gatehouse at Sylvania and in the lobby of the Cascade auditorium, provide information on programs, activities, and courses to students, staff, and visitors. If you have a question, want to make a complaint, or need help, contact the information staff.

Instructional Materials Production Center — IMC services are available at all PCC centers with the main center located on A level of the College Center building, Sylvania. Services include duplication, binding, transparencies, photography, artwork, mounting, and testing scanning. To accommodate the many requests for services, the IMC has established procedures for all services. A student's request will be completed only after authorization by his or her instructor.

Job Placement Service — A job placement specialist is available to help students locate part-time work while attending school or full-time positions after graduation. Placement offices are located at Sylvania, room CC A1a and at Cascade, C level, Student Union.

Media Centers — Resources for learning (libraries, audio-visual equipment, and drop-in centers) are located at Sylvania, Cascade, and the Ross Island Center. Apply for your I.D. card at the circulation desk and allow one week for processing. Audio-visual equipment, records, and tapes are available at all centers; contact the A-V Center for procedures.

Drop-In Centers are located at Sylvania, CC B2n, and at Cascade, SU C2, and are open 8 a.m. to 9 p.m. Monday through Thursday, and 8 a.m. to 5 p.m. Friday. The Drop-In Center provides students (at their own request or on instructor's referral) with English and math help, career selection information, and programmed instructional materials.

Parking and Campus Safety — Free parking at all PCC centers is limited to vehicles with current PCC parking permit displayed inside the vehicle. These can be obtained at the Sylvania and Cascade Campus Safety offices along with a map showing the parking areas and campus traffic regulations.

To receive a PCC Parking Permit you must provide:
1. Valid driver's license.
2. License number of vehicle, make, model, and year of manufacture.
3. Your class schedule and student I.D. card.
Special permits may be obtained with written permission from division deans. If a second car is to be driven on campus provide same information as above. A supplemental card, but not another decal, will be issued.

The permit must be obtained within one week after classes begin in each term. The permit must be affixed to left corner of windshield (driver's side).

Staff and students are subject to the same regulations on campus as when they drive on public streets. Traffic citations will be issued for violations.

Campus Safety personnel carry cable jumpers and tire irons in their vehicles to assist students. At Sylvania, contact the Campus Safety office for assistance; at Cascade and the Ross Island Center call the administrative office for assistance.

Publications — Catalogs are available free of charge to students who have paid their advance registration fees and may be obtained at the Sylvania or Cascade Business offices or the information centers. Written information on all aspects of the college is available at the information centers.

Student Accident Insurance — All students of Portland Community College may purchase Student Accident Insurance on a voluntary basis. This insurance provides broad coverage of hospital and doctor care for accidental injuries while participating in school sponsored activities, including direct travel to and from school. Additionally, students may buy 24-hour insurance which will cover them for other specific activities throughout the school year, excluding interscholastic sports. This insurance is available through the business offices.

The Store — The Store is a retail clothing store operated by PCC merchandising students which is located on the Sylvania mall. Purchases may be charged on BankAmerica.

Services for the Deaf — PCC provides counseling, interpreting, and tutoring services for deaf students. The total communication method is utilized to accommodate all deaf who wish to attend college classes.

Special language development and math classes are offered specifically for the deaf student whose educational background has been such that the regularly scheduled college classes are not appropriate. Placement into these classes is determined by the Special Educational Services office.

Counseling and testing services are offered to assist the deaf student determine an area of career training at the college. Staff members knowledgeable in the education and communication with the deaf provide this service.

Notetaking arrangements within a classroom are made for deaf students as well as other handicapped individuals needing the service.

Adult education classes are offered for the deaf through the Community Education division. Classes in basic education as well as general interest are taught or interpreted by individuals familiar with the American Sign Language. Such classes as cooking, sewing, and toile painting are offered upon request if the number of individuals are adequate to establish a class.

Sign language classes are offered for credit or non-credit through the Instructional Technology department and Community Education division respectively (see Education section).

Corrective or Adaptive Physical Education — Portland Community College offers corrective or adaptive physical education for handicapped students. A physical therapist designs individualized or small group instruction to develop physical strength or specific recreation skills for those students unable to participate in a regularly scheduled physical education class. The student wishing to receive this service should consult the physical therapist within the Physical Education department.

Services for the Blind and Other Visually Impaired — Students requiring taped material from textbooks or other printed matter should ask for the service through the Special Educational Services office. The college utilizes volunteers from St. Barnabas Episcopal Church to do the taping.

Other Special Educational Services — Veterans receiving federal veterans vocational rehabilitation benefits are served through the Special Educational Services office. Tutorial assistance and program planning for such veterans are arranged through this office.

Students with specific learning difficulties may receive some services, either direct or referral, from the Special Educational Services office. Programs for these students are limited but are continually being developed by the college.

The primary purpose of the Special Educational Services office is to provide the necessary services to make it possible for the handicapped student to participate in the regular programs of the college.
Student Activities

Student activities are many and varied at PCC and are an important part of college life. Student government involves five executive officers, an interclub council made up of club presidents or their representatives, and a number of activities committees which work on student body problems and report to the executive committee for action.

PCC competes with other colleges and organizations in swimming, basketball, soccer, gymnastics, tennis, golf, volleyball, and bowling. PCC believes in athletic participation for all and emphasizes the popular intramural sports program.

The Bridge is the college newspaper, produced by students in journalism as a practical working experience.

A forensics squad takes part in public speaking contests throughout the Northwest.

All college related student activities must have the approval of the director of Student Services. This approval is to ensure that activities do not conflict with the regular operation of the school and other events already scheduled.

How to Form a Club — Any group or club desiring to organize must obtain a charter application from the student government office. This application and a constitution must then be presented to the student council for consideration and approval.

All clubs and associations must have a faculty sponsor who must be present at all club meetings.

If approved by the student government, the group shall be issued a charter signed by the college president and the president of the Associated Student Body. A copy of such a charter shall be filed with the Associated Student Body secretary.

College Activities Calendar — A master calendar of events and meetings of all college related organizations is maintained by Publications and Information. Events conducted by clubs or organizations (other than instructional classes), meetings of organizations, and community service events are included. To avoid conflict of dates, notice of any events should be cleared on the calendar well in advance, preferably 30 days, with the coordinator of facilities use, CCB 16a, extension 208.

Student Code of Conduct — Portland Community College students have demonstrated their willingness to accept responsibilities; therefore, rigid codification is not necessary. The laws governing the campus are the same laws governing our society:

1. Any use of alcoholic beverages and/or narcotics on the campus or at any college function is prohibited. Violation may result in immediate suspension from school of any students involved, regardless of age.

2. Smoking and eating areas are clearly marked. Students and staff are asked to respect the wishes of non-smokers and smoke only in the prescribed areas. Smoking in all classroom areas is prohibited.

Student Meetings Off Campus — Students not identifying themselves as representatives of the college are, of course, free to exercise their own judgment as to what they do. However, those who participate in off-campus activities as representatives of the college are reminded that they are still subject to city and county ordinances and state laws and that if they violate these ordinances or laws, they may be subject to disciplinary action of the college.

Use of Buildings — Use of rooms or other college facilities for other than regular college classes should be arranged ahead of time through the coordinator of facilities use, CCB 16a, extension 208.

Send more information... Please send information on the following programs:
- Business
- Data Processing
- Dental Services
- Education
- Electronics
- Engineering Technology
- Government Services
- Health Technology
- Home Economics, Cosmetology
- Hospitality Services
- Landscape Technology
- Leather Crafts Technology
- Legal Assistant
- Machine Technology
- Management / Supervisory Development
- Mass Media
- Nursing
- Transportation
- Veterinary Science Technology
- Welding Technology
- College Transfer Programs
- Language Arts
- Mathematics, Science
- Physical Education, Recreation
- Social Sciences, Social Service
- Visual and Performing Arts
- Aerospace Studies
- Apprenticeship
- Education Programs in the Community

Name ____________________________
Address __________________________
________________________ Zip Code

Clip and return to:

Portland Community College
Information Center
12000 S.W. 49th Avenue
Portland, Oregon 97219
Business Administration

Portland Community College offers eight career programs within the broad area of Business Administration: Accounting, Banking and Finance, Business Management, Merchandising, Real Estate Appraisal, Real Estate Brokerage, Escrow Services, and Income Tax Preparation.

Business Administration programs have courses common to all Business Administration certificates and degrees. In addition to the basic program the student selects an area of specialization.

Courses in all programs may be taken whenever their availability fits the student's schedule. Subjects involving more than one term must be taken in sequence and each prerequisite or its equivalent must be satisfied. Prerequisites are indicated in the list of courses and the course descriptions. To assist you in enrolling for the appropriate Business Communications and Business Mathematics courses, placement examinations are offered prior to registration.

Accounting

Job Description—This program prepares the student for entry into the accounting field as a bookkeeper, an accounting clerk, or a junior accountant who performs a variety of routine calculating, posting, and typing duties; checks items on reports; summarizes and posts data in designated books; performs a variety of other duties such as making invoices or monthly statements, preparing payrolls, verifying bank accounts, keeping record files, making periodic reports of business activities, and listing and checking details as instructed. He or she may devise, install, and supervise the operation of general accounting, budget, and cost systems.

Opportunities—Opportunities for entry employment are good; promotions and advancements depend upon additional education and experience. If you wish to become a professional accountant, you should plan to earn at least a bachelor's degree in business administration with a major in accounting.

Potential Earnings—A beginner in the accounting field may expect to receive an annual salary of between $7,000 and $9,000.

Banking and Finance

Job Description—A clerk who prepares money orders, checks, and cash to be deposited or to be transferred to another bank. In time he or she may learn to approve loans; collect debts due the bank; learn to buy and sell collateral; and may be called upon to appraise lands, crops, animals, and business enterprises as well as assume responsibility for supervising personnel.

Opportunities—Banks in the United States
hire approximately 250,000 workers from high schools and colleges every year. Opportunities will remain high through the 1970's. Each of these jobs will have opportunities for additional training leading to positions ranging from assistant cashiers and assistant treasurers to chief executives.

**Potential Earnings**—Beginning salaries range from $5,000 to $7,500. Opportunities for advancement are excellent with most promotions made from within.

**PCC Program**—Two year associate degree program. Emphasis is on knowledge of banking and financial procedures, business organization and functions, and economics. The graduate of this program is prepared to enter the banking and finance field as a trainee. PCC also offers a two year associate degree program in cooperation with the American Institute of Banking exclusively for bank employees. Information relating to this program is available from the Community Education division.

**Recommended Program**

<table>
<thead>
<tr>
<th>Dept Cr No</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk Hr</th>
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<tbody>
<tr>
<td>First Term</td>
<td></td>
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</tr>
<tr>
<td>BA 101</td>
<td>Introduction to Business</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Mth 2.308</td>
<td>Business Mathematics</td>
<td>(Basic Mathematics may be required as prerequisite)</td>
<td>4</td>
</tr>
<tr>
<td>BA 211</td>
<td>Principles of Accounting I</td>
<td>(Prerequisite: Bus 2.101 or consent of instructor)</td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.155</td>
<td>Principles of Bank Operations</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

| Second Term |            |              |           |
| BA 212     | Principles of Accounting II |              | 3         |
| SS 215     | Principles of Business Machines I | (Math dept. approval required) | 5         |
| Bus 2.156  | Principles of Banking Systems |              | 3         |
| SS 121 or 124 | General Education* |              | 3         |

| Third Term |            |              |           |
| BA 213     | Principles of Accounting III |              | 3         |
| Psy 1.546  | Principles of Psychology and Human Relations |              | 3         |
| Bus 2.165  | Principles of Savings and Time Deposits |              | 3         |
| General Education* |              |              | 6         |

| Fourth Term |            |              |           |
| Wr 2.301   | Business Communications I |              | 3         |
| BA 226     | Business Law |              | 3         |
| BA 111     | The Computer in Business |              | 3         |
| Bus 2.405  | Principles of Financial Statements | (Prerequisite: BA 212) | 3         |
| General Education* |              |              | 3         |

**Fifth Term**

| Wr 2.302 | Business Communications II | 3         |
| Bus 2.157 | Business Personnel Management | 3         |
| Bus 2.158 | Business Money and Banking | 3         |
| Bus 2.166 | Business Trust Function Services | (Prerequisite: BA 101) | General Education* | 3 |

| Sixth Term |            |              |           |
| Bus 2.168  | Installment Credit |              | 3         |
| Bus 2.169  | Financing Business Enterprise |              | 3         |
| Bus 2.159  | Bank Public Relations and Marketing |              | 3         |
| BA 222     | Finance | (Prerequisite: BA 212) | General Education* | 3 |

**Degree Requirements**

- Required courses (listed above) 69 cr/hr
- General Education courses 18 cr/hr
- Elective courses 93 cr/hr

**Recommended Electives**

| SS 122 | Typing II | 5 2 |
| SS 111 | Stenography I | 5 3 |
| SS 112 | Stenography II | 5 3 |
| Ec 201 | Principles of Economics | 3 3 |
| Ec 202 | Principles of Economics | 3 3 |
| Ec 203 | Principles of Economics | 3 3 |
| Sp 100 | Basic Communications | 3 3 |
| PS 1.500 | American Institutions | 3 3 |
| BA 219 | Principles of Managerial Accounting Systems | 3 3 |

*General Education Requirements*

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**Business Management**

**Job Description**—A business manager formulates company or department policies, coordinates activities, and directs personnel to attain operational goals. He or she assigns duties to workers and establishes work schedules; may evaluate performance; and may recommend hiring, wages, scales, promotions, and dismissals.

**Opportunities**—Opportunities for entry employment are always good with numerous opportunities for advancement.

**Potential Earnings**—Earnings of a newly appointed manager may approximate $9,000 to $10,000 with an opportunity to advance to several times that figure, depending upon the size, nature, and location of the firm.

**PCC Program**—Two year associate degree program. Emphasis is on management principles, marketing, economics, advertising, data processing, and office management.

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**Recommended Program**

<table>
<thead>
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<th>Course Title</th>
<th>Class/Lab Cr</th>
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<td>3</td>
</tr>
<tr>
<td>Wr 2.301</td>
<td>Business Communications II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BA 101</td>
<td>Principles of Accounting I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BA 211</td>
<td>Principles of Accounting II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.101</td>
<td>Principles of Bank Operations</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

| Second Term |            |              |           |
| BA 212     | Principles of Accounting III |              | 3         |
| BA 226     | Business Law |              | 3         |
| BA 221     | Principles of Business Law | (Prerequisite: BA 226) | 3         |
| Bus 2.300  | Principles of Insurance |              | 3         |
| Bus 2.327  | Advanced Salesmanship | (Prerequisite: Bus 2.307) | General Education* | 3 |

| Third Term |            |              |           |
| SS 121     | Typing I or II |              | 5 2         |
| SS 111     | Stenography I |              | 5 3         |
| SS 112     | Stenography II |              | 5 3         |
| Ec 201     | Principles of Economics |              | 3 3         |
| Ec 202     | Principles of Economics |              | 3 3         |
| Ec 203     | Principles of Economics |              | 3 3         |
| Sp 100     | Basic Communications |              | 3 3         |
| PS 1.500   | American Institutions |              | 3 3         |
| BA 219     | Managerial Accounting Systems |              | 3 3         |

*General Education Requirements*
### Merchandising

**Job Description**—The graduate may assume a position of responsibility in the area of sales, buying, display, advertising, and/or control. He or she may supervise the selling, receiving, and checking of merchandise; keep inventory records; prepare displays; assist in ordering merchandise for sale; or assist in promotion.

**Opportunities**—It is expected that more than 105,000 job openings in the retail sales field will occur annually through the 1970's. It is estimated that there are about eight supervisory or executive jobs out of every 100 department store jobs. This means that chances for promotions are excellent and may be rapid.

**Potential Earnings**—Sales people generally earn from $2.50 to $3.00 per hour to start. A buyer in a fairly large store may earn from $10,000 to $15,000 a year.

**PCC Program**—Two-year associate degree program with emphasis on retail buying, selling, and managing. Practical experience is provided through outside work experience and participation in operating The Store, a retail clothing store at Sylvania. The graduate of the merchandising program is prepared to enter junior executive training in a retailing or wholesaling outfit.

**Recommended Program**

<table>
<thead>
<tr>
<th>Dept Cr</th>
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<th>Class/Lab Cr Hrs/Wk Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mth 2.308</td>
<td>Business Mathematics (Basic Mathematics may be required as prerequisite)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Degree Requirements**

- Required courses (listed above): 72 cr/hr
- General Education courses: 18 cr/hr
- Elective courses: 6 cr/hr
- Total: 96 cr/hr

**Recommended Electives**

- Bus 2.303: Fundamentals of Advertising 3
- Bus 2.215: Buying 3
- Sp 100: Basic Communications 3
- PS 1.600: American Institutions 3
- Bus 2.305: Principles of Retailing 3
- SS 216: Business Machines II 5
- Ec 201: Principles of Economics 3
- Bus 2.158: Money and Banking (Prerequisite: BA101) 3
- Bus 2.157: Personnel Management 3
- BA 111: The Computer in Business 3
- BA 199: Accounting Problems (Prerequisite: BA212 or consent of instructor) 3

*General Education Requirements

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### Real Estate Appraisal and Real Estate Brokerage

**Job Description**—The appraiser makes value appraisals of real property. He or she interviews persons familiar with property; inspects the property; searches public records of sales, leases, assessments, and other transactions to determine proper value; compiles material and sets a correct, definite rate; submits reports to corroboration value as established. The broker secures listings of properties for sale or rent, interviews prospective buyers and renters, quotes purchase prices, discusses conditions of sales or terms of lease, and draws up earnest money receipts and loan applications.

**Opportunities**—Good opportunities for ambitious, well-prepared people to enter the field as salespersons or appraisal trainees.

**Potential Earnings**—(Appraisal) $10,000 to $12,000 per year to start depending on agency. (Brokerage and Fee Appraisal) Open, commission basis.

**PCC Program**—Real Estate Appraisal and Real Estate Brokerage are each two-year associate degree programs. Students take common real estate subject courses in addition to specializing in appraisal or brokerage.

**Recommended Program**

<table>
<thead>
<tr>
<th>Dept Cr</th>
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<tr>
<td>Mth 2.308</td>
<td>Business Mathematics (Basic Mathematics may be required)</td>
<td>4</td>
</tr>
<tr>
<td>Ps 1.546</td>
<td>Psychology and Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>BA 111</td>
<td>The Computer in Business</td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.309</td>
<td>Retail Store Management**</td>
<td>2</td>
</tr>
<tr>
<td>Bus 2.303</td>
<td>Fundamentals of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Ec 115</td>
<td>Outlines of Economics</td>
<td>3</td>
</tr>
<tr>
<td>SS 215</td>
<td>Business Machines I (Math dept. approval required)</td>
<td>5</td>
</tr>
<tr>
<td>Bus 2.215</td>
<td>Buying</td>
<td>2</td>
</tr>
<tr>
<td>Bus 2.203</td>
<td>Credit Procedures</td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.314</td>
<td>Small Business Operations</td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.317</td>
<td>Visual Merchandising</td>
<td>3</td>
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<tr>
<td>Bus 2.343</td>
<td>Work Experience and Seminar (May be taken any term with instructor approval)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Degree Requirements**

- Required courses (listed above): 70 cr/hr
- General Education courses: 18 cr/hr
- Elective courses: 6 cr/hr
- Total: 94 cr/hr

**Recommended Electives**

- Sp 100: Basic Communications 3
- PS 1.600: American Institutions 3
- Art 2.315: Advertising Layout I 1
- Bus 2.316: Advertising Copywriting 4
- Bus 2.400: Business Management (Prerequisite: BA 101 or 211) 3
- Bus 2.330: Principles of Insurance 3

- Bus 2.560: Office 3
- Bus 2.157: Management 3
- BA 222: Finance (Prerequisite: BA212) 3
- BA 212: Principles of Accounting II 3
- BA 199: Accounting Problems 3

*General Education Requirements

**These courses relate to work in The Store.**
Escrow Services

Job Description—The escrow officer is responsible for the final settlement between buyer and seller. The services involved in a property transaction vary according to instructions from the parties; therefore, they must be handled by a person skilled in the performance of the many details required to quickly and safely close an estate transaction. These include: clearing and obtaining a Policy of Title Insurance; guaranteeing the buyer’s “Ownership Rights” to the property; clearing all liens and encumbrances of record; delivering and recording all notes, mortgages, deeds of trust, real estate contracts, and other documents; securing beneficiary statements from holders of loans of record; prorating taxes, insurance, and rentals; adjusting interest on any encumbrances of record; paying off existing loans; having documents recorded; issuing settlement statements to both buyers and sellers; distributing funds and documents; retaining copies of all escrows on file for the convenience and future reference of all parties.

Opportunities—Escrow with its related activities is among the major service activities relating to the transfer of property. Expansion and growth of the many banks, financial institutions, title insurance companies, and escrow companies have created a need for trained escrow service personnel. Persons working in this occupation need a minimum of high school education plus additional training in specialized real estate and escrow courses.

Potential Earnings—As a beginner the escrow officer may expect to earn approximately $450 per month with a potential of at least $1,000 per month when senior officer status is attained.

PCC Program—This is a one year certificate program. In addition to the required core program, students take escrow courses in sequence, as indicated, plus sufficient elective courses to satisfy the requirements of 45 credits for a certificate.

Degree Requirements

Appraisal
Required courses (listed above) 70 cr hr
General Education courses 18 cr hr

Elective courses 6 cr hr
Total 94 cr hr

Brokerage
Required courses (listed above) 72 cr hr
General Education courses 18 cr hr
Elective courses 30 cr hr
Total 120 cr hr

Recommended Electives

Wr 2.400 Business Management (Prerequisite: Bus. 226)
Bus 2.560 Office Management
Ec 201 Principles of Economics
BA 212 Principles of Accounting
Bus 2.157 Personnel Management

Minimum credits required for certificate—45

Income Tax

Preparers of individual income tax returns who charge a fee for their services are now required by Oregon State Law to complete 60 clock hours of basic income tax instruction before sitting for the examination to qualify for a license. A minimum of 60 clock hours must be completed within the three year period following the applicant’s initial licensing in order to renew a license (20 hours minimum the first year, eight hours minimum the second year, and eight hours the third year). This renewal program consists of advanced study of income tax law, theory, and practice. The following courses are offered to provide interested individuals with an opportunity for meeting state statutory education requirements.

Recommended Electives

Bus 2.506 Legal Typing and Terminology
Bus 2.520 Legal Office Procedures
Bus 2.330 Principles of Insurance
Psy 1.546 Psychology
Sp 100 Business Communications
Ec 115 Outlines of Economics

Minimum credits required for certificate—45
General Office Clerk

Job Description—A general office clerk performs a variety of clerical duties such as copying data; compiling records and reports; tabulating and posting data in record books; and computing wages, taxes, commissions, and payments. The clerk may be responsible for cash, receipts, bills, checks, inventory, etc. and may operate various office machines, open and distribute incoming mail, prepare outgoing mail, keep books, and order supplies.

Opportunities—Employment opportunities are many; promotions may occur rapidly to positions of greater responsibility and/or income. General office clerks are employed in almost every office where records are kept, correspondence is handled, and routine tasks are performed. Chances for promotion are greater in the general office clerk category.

Potential Earnings—From $75 to $100 a week to start.

PCC Program—One year program leading to a certificate of training. Emphasis is on typing, filing, business machines, and machine transcription. No shorthand is required.

Recommended Program

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Course Title</th>
<th>Class/Lab</th>
<th>Cr</th>
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</thead>
<tbody>
<tr>
<td>SS</td>
<td>122 or 124</td>
<td>Typing II or IV</td>
<td></td>
<td>5 2</td>
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<tr>
<td></td>
<td></td>
<td>(SS 121 may be required as prerequisite)</td>
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<tr>
<td>Wr</td>
<td>2.301</td>
<td>Business Communications I</td>
<td>3 3</td>
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<tr>
<td>Mth</td>
<td>2.308</td>
<td>Business Mathematics</td>
<td>4 4</td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td>2.101</td>
<td>Introduction to Accounting I</td>
<td>3 3</td>
<td></td>
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<tr>
<td>SS</td>
<td>2.516</td>
<td>Filing and Records Management</td>
<td>3 3</td>
<td></td>
</tr>
</tbody>
</table>

Second Term

| SS  | 122, 123 or 124 | Typing II, III, or IV | 5 2 |
| Wr  | 2.302 | Business Communications II | 3 3 |
| SS  | 215 | Business Machines I | 5 2 |
| BA  | 101 | Introduction to Business Procedures I | 4 4 |
| SS  | 2.512 | Office Procedures I | 2 2 3 |

*Placement according to ability.

Recommended Electives

| SS  | 216 | Business Machines II | 3 3 |
| Bus | 2.103 | Introduction to Accounting II | 3 3 |
| BA  | 111 | The Computer in Business | 3 1 3 |
| PS  | 1.600 | American Institutions | 3 3 |

Minimum credits required for certificate—46

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General Secretary

Job Description—The secretary performs general office work assisting company officials with routine executive and clerical duties, takes dictation and transcribes, interviews office callers, answers and makes phone calls, handles personal and business mail, writes routine correspondence on own initiative, and may supervise other clerical workers.

Opportunities—Employment opportunities for trained secretaries are expected to be excellent. Authorities agree that the anticipated increase in the use of automation in office procedures is not likely to affect the demand for competent, trained secretaries; however, it is likely that some of the work requirements may change. A qualified secretary may advance to a specialized type of work such as foreign service secretary, executive secretary, secretary to specialized government services, or private secretary to a business executive.

Potential Earnings—Recent surveys indicate that salaries for beginning secretaries in metropolitan areas average approximately $500 per month.

PCC Program—One year program leading to a certificate of training. Emphasis is on shorthand, typing, filing, business machines, and machine transcription.

Recommended Program

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
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<td>Business Mathematics</td>
<td>4 4</td>
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<tr>
<td>SS</td>
<td>112 or 113</td>
<td>Stenography II or III</td>
<td>5 3</td>
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</tr>
<tr>
<td>SS</td>
<td>2.516</td>
<td>Filing and Records Management</td>
<td>3 3</td>
<td></td>
</tr>
</tbody>
</table>

Second Term

| SS  | 122, 123 or 124 | Typing II, III, or IV* | 5 2 |
| Wr  | 2.302 | Business Communications III | 3 3 |
| Mth | 2.308 | Business Mathematics | 4 4 |
| SS  | 215 | Business Machines I | 5 2 |
| SS  | 2.512 | Office Procedures II | 2 2 3 |
| SS  | 113 | Stenography III* | 5 3 |

*Placement according to ability.

Minimum credits required for certificate—55

Recommended Electives

| SS  | 2.570 | Stenography IV | 2 2 3 |
| SS  | 2.514 | Business Procedures I | 2 2 3 |
| Psy | 1.546 | Psychology and Human Relations | 3 3 |
| Bus | 2.101 | Introduction to Accounting II | 3 3 |

Fourth Term

| BA  | 101 | Introduction to Business | 4 4 |
| Bus | 2.519 | Business Relations | 3 3 |
| Ec  | 115 | Outlines of Economics | 3 3 |
| Sp  | 100 | Basic Communications | 3 3 |
| SS  | 1.600 | American Institutions | 3 3 |

Legal Secretary

Job Description—In addition to secretarial activities, the legal secretary prepares papers and correspondence of a legal nature such as summons, complaints, motions, and subpoenas.

Opportunities—Opportunities are good and are expected to remain so especially in metropolitan areas. A legal secretary with some additional education may advance to a position of legal assistant or court administrator.

Potential Earnings—Initial salaries are generally somewhat higher than general secretaries, possibly $500 to $600 per month.

PCC Program—Two year associate degree program. In addition to secretarial skills, the program emphasizes knowledge of legal terminology and processes.

Recommended Program

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Course Title</th>
<th>Class/Lab</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>122 or 124</td>
<td>Typing II or IV*</td>
<td>5 2</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(SS 121 may be required as prerequisite)</td>
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<td></td>
</tr>
<tr>
<td>Wr</td>
<td>2.301</td>
<td>Business Communications I*</td>
<td>3 3</td>
<td></td>
</tr>
<tr>
<td>Mth</td>
<td>2.308</td>
<td>Business Mathematics</td>
<td>4 4</td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>112 or 113</td>
<td>Stenography II or III*</td>
<td>5 3</td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>2.516</td>
<td>Filing and Records Management</td>
<td>3 3</td>
<td></td>
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</tbody>
</table>

Second Term

| SS  | 122, 123 or 124 | Typing II, III, or IV* | 5 2 |
| Wr  | 2.302 | Business Communications III | 3 3 |
| Mth | 2.308 | Business Mathematics | 4 4 |
| SS  | 215 | Business Machines I | 5 2 |
| SS  | 2.512 | Office Procedures II | 2 2 3 |
| SS  | 113 | Stenography III* | 5 3 |

*Placement according to ability.

Minimum credits required for certificate—55

Recommended Electives

| SS  | 2.570 | Stenography IV | 2 2 3 |
| SS  | 2.514 | Business Procedures I | 2 2 3 |
| Psy | 1.546 | Psychology and Human Relations | 3 3 |
| Bus | 2.101 | Introduction to Accounting II | 3 3 |

Minimum credits required for certificate—55

Recommended Electives

| SS  | 214 | Typing IV | 5 2 |
| SS  | 211 | Applied Stenography I | 5 3 |
| SS  | 212 | Applied Stenography II | 5 3 |
| SS  | 213 | Applied Stenography III | 5 3 |
| SS  | 216 | Business Machines II | 5 3 |
| Bus | 2.103 | Introduction to Accounting II | 3 3 |
| PS  | 1.600 | American Institutions | 3 3 |
Second Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SS 122</td>
<td>Typing II, III or IV</td>
<td>5</td>
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<tr>
<td>SS 123</td>
<td>Applied Stenography I</td>
<td>3</td>
</tr>
<tr>
<td>Wr 2.302</td>
<td>Business Communications II</td>
<td>3</td>
</tr>
<tr>
<td>BA 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>SS 113 or 211</td>
<td>Stenography III or Applied Stenography</td>
<td>5</td>
</tr>
<tr>
<td>SS 2.512</td>
<td>Office Procedures I</td>
<td>2</td>
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<tr>
<td>SS 2.514</td>
<td>Office Procedures II</td>
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Third Term

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<tr>
<td>SS 2.570</td>
<td>Transcription</td>
<td>2</td>
</tr>
<tr>
<td>SS 2.514</td>
<td>Business Procedures II</td>
<td>2</td>
</tr>
<tr>
<td>SS 215</td>
<td>Business Machines I</td>
<td>3</td>
</tr>
<tr>
<td>Bus 2.101</td>
<td>Introduction to Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>SS 113 or 211</td>
<td>Stenography III or Applied Stenography</td>
<td>5</td>
</tr>
<tr>
<td>SS 2.520</td>
<td>Legal Office Procedures I</td>
<td>2</td>
</tr>
<tr>
<td>SS 2.519</td>
<td>Business Relations</td>
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Fourth Term

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SS 2.508</td>
<td>Legal Typing and Terminology</td>
<td>5</td>
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<tr>
<td>Bus 2.519</td>
<td>Business Relations</td>
<td>3</td>
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<tr>
<td>SS 211 or 212</td>
<td>Applied Stenography I or II</td>
<td>5</td>
</tr>
<tr>
<td>SS 2.520</td>
<td>Legal Office Procedures I</td>
<td>2</td>
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<tr>
<td>SS 2.521</td>
<td>General Education**</td>
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Fifth Term

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SS 2.601</td>
<td>Legal Transcription and Terminology</td>
<td>5</td>
</tr>
<tr>
<td>SS 2.606</td>
<td>Medical Terminology for Legal Secretary</td>
<td>5</td>
</tr>
<tr>
<td>SS 213</td>
<td>Applied Stenography III</td>
<td>5</td>
</tr>
<tr>
<td>BA 226</td>
<td>Business Law</td>
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Sixth Term

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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>SS 2.610</td>
<td>Work Experience and Seminar</td>
<td>15</td>
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<tr>
<td>SS 214</td>
<td>General Education</td>
<td>9</td>
</tr>
</tbody>
</table>

*Placement according to ability

Degree Requirements

- Required courses (listed above): 71 credits
- General Education courses: 18 credits
- Elective courses: 3 credits
- Total: 92 credits

Recommended Electives

- PS 1.600 American Institutions: 3 credits
- SS 2.514 Business Procedures II: 3 credits
- SS 211 Business Machines II: 3 credits
- SS 213 Applied Stenography III: 3 credits
- SS 2.530 Principles of Insurance: 3 credits
- SS 2.560 Office Management: 3 credits
- SS 124 Typing IV: 3 credits

**General Education Requirements

It is strongly recommended that priority be given to the following electives:

Psychology and Human Relations

Ec 115 Outlines of Economics
Sp 100 Basic Communications

Career (Professional) Secretary

Job Description — A career secretary possesses the skills and abilities to perform clerical or stenographic tasks demanded in an office and is also prepared to assume secretarial responsibilities of an interpretive and decision-making nature. He or she analyzes the scope and variety of his her work in relation to the company's operations and sets his or her own priorities and schedules.

Opportunities — There is always a demand for secretaries having this type of preparation. One may expect to advance rapidly to a position of executive secretary with the possibility of becoming an office manager.

Potential Earnings — Beginning salaries range from $1,250 to $1,500 per week with a potential of $8,500 to $10,000 per year based on experience.

PCC Program — Two-year associate degree program. Emphasizes the responsibilities of the secretary who is called upon to work independently, solve problems, and make decisions.

Recommended Program

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Crs</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
</table>
| First Term
| SS 122 or 124 | Typing II, III or IV               | 5            | 2     |
| SS 113 or 211 | Stenography III or Applied Stenography | 5            |
| SS 2.512   | Office Procedures I                 | 2            | 2     |
| SS 215     | Business Machines I                 | 3            | 3     |
| Second Term
| SS 122, 123 or 124 | Typing II, III or IV               | 5            | 2     |
| SS 211     | Business Communications I           | 3            | 3     |
| SS 113 or 211 | Stenography III or Applied Stenography | 5            |
| SS 2.512   | Office Procedures I                 | 2            | 2     |
| SS 215     | Business Machines I                 | 3            | 3     |
| Third Term
| SS 123 or 124 | Typing II, III or IV               | 5            | 2     |
| SS 124     | Office Management                   | 3            | 3     |
| SS 215     | Business Machines I                 | 3            | 3     |

BA 101, (T), Introduction to Business, 4 credits

- The student will be introduced to possible choices of specialization in business and to how business activity relates to our economic system and its legal and regulatory environment. The student will learn how business management functions to achieve maximum production, sales, net income, and to make maximum contribution to owners, employees, and society within government regulations.

BA 111 (T), The Computer in Business, 3 credits

- This course will introduce the business student to the basic principles and functions of business data processing, including a wide range of methods for-
cessing data with emphasis on common business applications. Enough detail about these methods will be presented to allow the student to understand their affect on programs using contemporary programming language.

BA 199 (T), Accounting Problems, 3 cl hr/ wk, 3 cr—Selected topics will be presented on a seminar basis according to the student's needs and interest. The problems include financial accounting, payroll, and business taxes, and different methods of inventory costing and plant depreciation and their effects on the financial statements. Prerequisite: Bus 210, consent of instructor.

BA 211 (T), Principles of Accounting I, 3 cl hr/wk, 3 cr—Students will learn basic accounting principles, practices, and the complete accounting cycle; to record data concerning sales, receipts, purchases, and payments in general and special journals; the different methods of inventory costing and plant depreciation and their effects on the financial statements. Prerequisite: Bus 2.101 or consent of instructor.

BA 212 (T), Principles of Accounting II, 3 cl hr/wk, 3 cr—Students will learn: payroll systems; applications of automatic data processing to accounting; correct procedures in collecting and recording data for partnerships and corporations; the characteristics, organization, and operation of a corporation; how long and short term equity — both debt and investment — are recorded; to interpret data and prepare financial statements.

BA 213 (T), Principles of Accounting III, 3 cl hr/wk, 3 cr—Students will learn the elements of budgetary control, job order and process cost accounting and standard cost systems, the effects of income tax on business decisions, ratio analysis of financial statements. Procedural aspects are minimized; recording and controlling techniques are taught to the extent necessary to understand accounting principles.

BA 214 (T), Managerial Accounting Systems, 3 cl hr/wk, 3 cr—The student will be introduced to internal accounting, also called managerial accounting, and will learn the attention directing and problem solving functions of accounting in planning and the current control. He or she will learn accounting tools for evaluation, performance, long range planning, and special decisions. Emphasis is on cost analysis rather than on cost record keeping. Prerequisite: BA 212.

BA 221 (T), Production, 3 cl hr/wk, 3 cr—The student will learn fundamental processes in production decisions concerning plant location and layout, materials handling, research and development, procurement, production, inventory, statistical quality control, time and motion study, operations research. Prerequisite: BA 212.

BA 222 (T), Finance, 3 cl hr/wk, 3 cr—The student will be introduced to financial problems in establishment and operation of typical business organizations and will become familiar with types of ownership and organization, acquisition of capital, management of income, functions of financial institutions for business financing, and necessary financial adjustments for changing business conditions. Prerequisite: BA 212.

BA 223 (T), Marketing, 3 cl hr/wk, 3 cr—The student will develop an understanding of the role of marketing in the socio-economic system of the United States, involving channels of distribution and the marketing of goods and services by producer, wholesaler, and retailer. Emphasis will be placed upon marketing functions such as standardization, grading, pricing, and governmental regulations.

BA 226 (T), Business Law, 3 cl hr/wk, 3 cr—The student will evaluate facts and circumstances involving business law, will learn precise use of legal language, and will learn to form judgments of matters governing and affecting people. The course enables the student to apply basic principles of business law (including Uniform Commercial Code) to the governing of business activities.

BA 236 (T), Salesmanship, 3 cl hr/wk, 3 cr—Students will learn the principles of double entry bookkeeping as it relates to both service and merchandising businesses. The entire accounting cycle is presented as it applies to various journal and ledger systems, as well as simple work sheets, financial statements, and the closing of the books. Emphasis is placed on payroll accounting and the handling of cash, including petty cash and bank reconciliations. (May be waived.)

Bus 2.101, Introduction to Accounting I, 3 cl hr/wk, 3 cr—The student will learn the basic principles of double entry bookkeeping as it relates to both service and merchandising businesses. The entire accounting cycle is presented as it applies to various journal and ledger systems, as well as simple work sheets, financial statements, and the closing of the books. Emphasis is placed on payroll accounting and the handling of cash, including petty cash and bank reconciliations. (May be waived.)

Bus 2.103, Introduction to Accounting II, 3 cl hr/wk, 3 cr—The student will learn accounting procedures for purchases and sales, including instalments and consignments. Methods of evaluation and prepaid expenses is presented. Accounting for long-lived assets, including depreciation methods and disposition of assets, is included. Accrual accounting as applied to a wholesale partnership is presented, concluding with the entire accounting cycle and the annual report.

Bus 2.105, Income Tax Accounting, 3 cl hr/wk, 3 cr—In this course the student will learn how to prepare both federal and state individual returns and be introduced to partnership and corporate taxation. Prerequisite: Bus 2.111.

Bus 2.116, Cost Accounting I, 3 cl hr/wk, 3 cr—The student will learn to apply accounting methods and techniques to manufacturing costs, the job order process, joint costs, standard costs, and variance analysis. Prerequisite: Bus 2.111.

Bus 2.117, Cost Accounting II, 3 cl hr/wk, 3 cr—The student will learn to handle the accounting functions involving planning and budgeting as well as performance measurement and cost analysis for decision making. Prerequisite: Bus 2.116.

Bus 2.155, Principles of Bank Operations, 3 cl hr/wk, 3 cr—The student will study and discuss the economic importance of banks, bookkeeping and teller operations, legal relationship with depositors, management of bank funds, the Federal Reserve System, and government supervision.

Bus 2.156, Bank Management, 3 cl hr/wk, 3 cr—The student will study and discuss the nature and objectives of banking and formulation of objectives and policies, management of the employment of bank funds, loans and investments, the trust function and other service operations.

Bus 2.157, Personnel Management, 3 cl hr/wk, 3 cr—The student will develop an understanding of the human relations involved in the recruitment, selection, and placement of employees, with regard to training, experience, and abilities. The student will study the personnel functions of the line executive supervisor as well as the functions of the personnel director. Prerequisite: BA 101.

Bus 2.158, Money and Banking, 3 cl hr/wk, 3 cr—The student will study and discuss the financial institutions, the commercial banking system, creation of bank deposits, the Federal Reserve System, Federal Reserve Credit, the money market and interest rates, recent monetary problems, and international finance. Prerequisite: BA 101.

Bus 2.159, Bank Public Relations and Marketing, 3 cl hr/wk, 3 cr—The student will learn the functional structure of bank public relations and marketing. This includes the responsibilities of a bank employee in staff selection, training, and performance; the principles of internal communications, marketing, and opinion research. Prerequisite: BA 101.

Bus 2.160, Fundamentals of Bank Data Processing, 3 cl hr/wk, 3 cr—The student will study and discuss banking automation, computer concepts and hardware, cooperative data processing, and bank information systems.

Bus 2.165, Savings and Time Deposits, 3 cl hr/wk, 3 cr—The student will learn the fundamentals of savings and time deposit banking and how to apply those fundamentals to individual and social saving, money and capital markets, and financial investment.

Bus 2.166, Trust Function Services, 3 cl hr/wk, 3 cr—The student will learn to handle the services of a trust department involving wills, property rights, estates, trusts, guardships, corporate trusts, and agencies.

Bus 2.168, Installment Credit, 3 cl hr/wk, 3 cr—The student will develop a working knowledge of installment credit including credit risk, credit control, collection policy, and credit administration.

Bus 2.169, Financing Business Enterprise, 3 cl hr/wk, 3 cr—The student will learn to apply the principles of business finances to the establishment of a business venture and how to apply the necessary instruments and procedures of finance and administration.

Bus 2.203, Credit Procedures, 3 cl hr/wk, 3 cr—The student will learn methods of...
credit administration, evaluation of credit risks, credit controls, action for collection or legal remedies, how to assist in determining credit policy to secure credit information.

Bus 2.215, Buying, 2 cl hr, 3 lab hr/wk, 4 cr—The student will learn to make major buying decisions and to use purchasing guides including budgets or buying plans, catalogs, buying offices, and selection criteria. The student will know how to develop and evaluate a limited buying plan.

Bus 2.220, Real Estate Principles I, 3 cl hr/wk, 3 cr—The student will be oriented to the real estate field, real property, and appraisal; will learn basic elements of property rights, nature, and characteristics of property ownership.

Bus 2.221, Real Estate Principles II, 3 cl hr/wk, 3 cr—The student will study real estate principles, financing of transactions, functions of brokerage, elements in property evaluation, and trends in real estate developments. Prerequisite: Bus 2.220.

Bus 2.222, Real Estate Practices, 3 cl hr/wk, 3 cr—The student will build an understanding of elements involved in marketing real estate: brokerage, mortgages, property management and insurance, zoning, real estate advertising, leasing, other legal aspects.

Bus 2.223, Real Estate Law, 3 cl hr/wk, 3 cr—The student will learn the application of Oregon Real Estate Law to ownership, use, and transferability of real property. This will involve contracts, titles, deeds, leases, liens, covenants, conditions, restrictions, easements, estates, probate, and landlord-tenant relationships.

Bus 2.224, Real Estate Trends and Developments, 3 cl hr/wk, 3 cr—The student will study, overview, summarize, discuss, and report on economic, social, governmental trends affecting real estate development in Oregon.

Bus 2.225, Real Estate Appraisal I, 3 cl hr/wk, 3 cr—The student will analyze, overview, summarize, discuss, and report on economic, social, governmental trends affecting real estate development in Oregon. Prerequisite: Bus 2.225.

Bus 2.227, Real Estate Appraisal II, 3 cl hr/wk, 3 cr—The student will learn elements of neighborhood, site analysis and evaluation, and study building construction and utilities, commercial and industrial functional utility building materials, design techniques to determine the value of real estate in conjunction with transferability, financing and credit, just compensation in condemnation, and as basis for taxes.

Bus 2.226, Escrow Procedures, 3 cl hr/wk, 3 cr—This is a course designed to outline the day to day operation of the escrow office. Emphasis will be on real estate escrows with some personal property and bulk sales covered. Subordinations, sales escrow, lease-hold escrow, loan escrow, exchange escrow, and various legal documents will be covered.

Bus 2.267, Escrow Problems, 3 cl hr/wk, 3 cr—The course is intended for students who have completed an introductory course in escrow procedures. Emphasis will be on customer relations and on title problems such as tax liens, judgments, assessments, mechanics' liens, second mortgages, and various other liens and encumbrances.

Bus 2.303, Fundamentals of Advertising, 3 cl hr/wk, 3 cr—The student will learn to make major buying decisions and to understand broad viewpoints of advertising practices to stimulate further study of advertising as a career.

Bus 2.304, Fundamentals of Marketing, 3 cl hr/wk, 3 cr—The student will study marketing, advertising, and marketing channels of distribution involving producer, wholesaler, retailer, and consumer. The student will learn marketing functions such as warehousing, standardization, grading, pricing, and governmental regulations.

Bus 2.305, Principles of Retailing, 3 cl hr/wk, 3 cr—The student will study and discuss the functions of retail store operation such as merchandising (buying and selling), sales promotion, store approach, finance and control, and personnel.

Bus 2.307, Salesmanship, Basic, 3 cl hr/wk, 3 cr—The student will study personal selling and its significance to the economy and to the business firm; a knowledge of the psychological requirements and opportunities in selling and the relationship of the sales function to the areas of advertising, consumer behavior and motivation, and company and product information. The student will demonstrate the steps in making a sale, the procedures for preparing and performing a sales demonstration, the various approaches to a prospect, alternate processes of closing a sale, and the service functions associated with a sale.

Bus 2.314, Small Business Operations, 3 cl hr/wk, 3 cr—Through case studies, lectures, and discussions, the student will learn general functions and procedures of small business.

Bus 2.317, Visual Merchandising, 2 cl, 3 lab hr/wk, 4 cr—The student will learn to apply principles of line and design to merchandise display, how to treat problems of space utilization, improvisations, seasonal display, lighting, and organization of merchandising in a display. The student will create displays and analyze results.

Bus 2.327, Advanced Salesmanship, 3 cl hr/wk, 3 cr—The student will analyze the field of professional selling as a career, studying types of professional sales personalities. The student will learn the importance of establishing personal goals as well as sales goals for different areas and will learn how to build a sales organization, establish a territory, sell through markets and conventions, and handle "co-op" advertising. Prerequisite: Bus 2.307.

Bus 2.330, Principles of Insurance, 3 cl hr/wk, 3 cr—The student will study field of general insurance and learn various aspects of contracts of fire, marine, casualty, disability insurance.

Bus 2.343, Work Experience, Lab and Seminar, 1 cl, 15 lab hr/wk, 3 cr—Prerequisite: Employment in an approved merchandising or related positions which may lead to mid-managerial responsibility. The student will assess the business, social, and self-adjustment skills that are needed in work; will write a job description, produce an organization chart; will report on rules and regulations governing the job; will interpret the organization and its interpersonal relationships, especially its products and services. In the seminar the student will be expected to show progress in work performance and social behavior.
traits on rating from his or her supervisor. May be taken any term with instructor approval.

Bus 2.400, Business Management, 3 cl hr/wk, 3 cr—The student will learn the basic principles for organization, marketing, finance, personnel, control, product development, facilities planning, budgeting, forecasting, and business relations aspects of general management in a business. Prerequisite: BA 101, 211 or Bus 2.101.

Bus 2.405, Analysis of Financial Statements, 3 cl hr/wk, 3 cr—The student will learn to use basic principles and methods of analysis for interpreting financial and operating statements of commercial and industrial businesses as basis for appraisal of operating efficiency, investment value, credit rating of particular firms and operations. Prerequisite: BA 212.

Bus 2.519, Business Relations, 3 cl hr/wk, 3 cr—The student will learn practical applications of business etiquette; effective public relations; organization and personnel; business customers; ethics. Stresses importance of personality impact, relationships with others, self-appraisal, and self-improvement.

Bus 2.560, Office Management, 3 cl hr/wk, 3 cr—The student will learn the role of administrative office management, to organize and plan office operations, to control office costs, the responsibilities for leadership, the techniques of desirable human relations, and the application and impact of business information systems.

The course is designed especially for associates degree majors in Accounting, Business Management, and Legal or Career Secretary. Ideally, the student should have had most of the following courses prior to entering the course or consent of instructor: Accounting, Business Management, Introduction to Business, Survey of Electronic Data Processing, and Psychology and Human Relations.

IT 9.703, Income Tax Preparation, Basic, 6 cl hr/wk, 6 cr—A course designed to assist potential income tax return preparers in becoming more proficient in preparing personal income tax returns and in providing an opportunity whereby they can meet state statutory educational requirements.

IT 9.706, 9.707, 9.708, Income Tax Preparation, Advanced I, II, III, 3 cl hr/wk, 3 cr Courses designed to upgrade licensed income tax preparers and consultants and to assist them in more proficiently preparing personal income tax returns. The material presented will be of advanced nature with an in-depth study of new laws and regulations.

SS 111 (T), Stenography I, 5 lab hr/wk, 3 cr—The student will learn basic principles of Gregg Diamond Jubilee shorthand and will develop ability to read shorthand outlines rapidly and accurately from text at 50 words per minute. Rhythm and legibility in forming characters are stressed.

SS 112 (T), Stenography II, 5 lab hr/wk, 3 cr—Intermediate Gregg Diamond Jubilee shorthand. The student will develop ability to take unreviewed dictation for three minutes at 60 to 90 words per minute and transcribe with minimum error.

SS 113 (T), Stenography III, 5 lab hr/wk, 3 cr—The student will develop shorthand skills, abilities to speeds of 70/100 words per minute of unreviewed dictation for three minutes, transcribing with minimum error, and will demonstrate these skills by recording letters and transcribing them in mailable form.

SS 121 (T), Typing I, 5 lab hr/wk, 2 cr—The student will learn to type about 30 words per minute for three minutes using touch system and will demonstrate proficiency by setting up and typing simple tables, letters, tabulations, and manuscripts.

SS 122 (T), Typing II, 5 lab hr/wk, 2 cr—The student will develop the ability to produce business correspondence to mailable standards. Work will include the typing of letters, tabulations, memos, and manuscripts. Prerequisite: Typing speed 30 words per minute.

SS 123 (T), Typing III, 5 lab hr/wk, 2 cr—The student will develop skills and abilities to plan and type correspondence, business forms, reports, manuscripts, and tabulations with efficient use of time and material; will acquire experience in proofreading and placement to assume responsibility for determining acceptability of work. Prerequisite: Typing speed 50 words per minute and knowledge of materials in SS 121, SS 122.

SS 124 (T), Typing IV, 5 lab hr/wk, 2 cr—The student will gain experience, control, confidence, and endurance necessary for accurate typing; will gain in accurate typing speed over the speed standards for SS 122, or, through drills, will gain speed and accuracy to meet or exceed standards for SS 123.

SS 211 (T), Applied Stenography I, 5 lab hr/wk, 3 cr—The student will build shorthand skills to 80-110 words per minute for three minutes, transcribing with minimum error from unreviewed dictation; will learn to type shorthand letters into mailable copy from shorthand notes, working with business forms, carbons, and envelopes. Prerequisite: SS 113 and SS 123 or equivalent.

SS 212 (T), Applied Stenography II, 5 lab hr/wk, 3 cr—The student will increase shorthand speed to 90-120 words per minute for three minutes from unreviewed dictation, transcribing with minimum error at 25-45 words per minute into mailable letter form using advanced vocabulary and business forms.

SS 213 (T), Applied Stenography III, 5 lab hr/wk, 3 cr—The student will increase shorthand speed to 100-140 words per minute for three minutes from unreviewed dictation, transcribing with minimum error at 35-50 words per minute into mailable letter form using advanced vocabulary and business forms.

SS 215 (T), Business Machines I, 5 lab hr/wk, 2 cr—The student will learn to perform the four fundamental arithmetic processes on five office machines: ten-key adding, full keyboard adding, printing calculator, display dial electronic calculator, and printing electronic calculator. Prerequisite: Approval of math department.

SS 216 (T), Business Machines II, 5 lab hr/wk, 3 cr—The student will learn advanced arithmetical calculations: percentage, reciprocals, proration, interest, and merchandising on at least two different calculators.

SS 2.508, Legal Typing and Terminology, 5 cl hr/wk, 3 cr—The student will learn to type accurately and rapidly, rough drafts, briefs, forms, transcripts, documents, and correspondence related to the legal field. Prerequisite: Accurate typing, 50 words per minute SS 122.

SS 2.512, Office Procedures I, 2 cl, 2 lab hr/wk, 2 cr—The student will learn to fill out and route common business forms, type routine correspondence, handle mail, and create good will by effective telephone service. Prerequisite: SS 122 or consent of instructor.

SS 2.514, Office Procedures II, 2 cl, 2 lab hr/wk, 3 cr—The student will learn to locate and assemble data in a variety of arrangements; compose routine correspondence; arrange for meetings, conferences; and exercise judgment in responding to typical office situations. Prerequisite: SS 122.

SS 2.516, Filing and Records Management, 3 cl hr/wk, 3 cr—The student will learn alphabetic filing of material with speed and accuracy; proficiency in indexing, coding, and cross referencing; subject, geographic, and numeric filing with emphasis on the appropriate system for a particular business. Retention and transfer of files, controlling requisitions and charges, and supply and equipment needs will also be reviewed.

SS 2.520, Legal Office Procedures, 4 cl hr/wk, 3 cr—The student will learn operations in a law office: handling legal instruments; correspondence; taking dictation, typing, filing; telephone techniques; financial records; meeting the public. The student will learn the importance of punctuality, neatness, dependability, accuracy, resourcefulness, and overall efficiency. Prerequisite: SS 512.

SS 2.570, Transcription, 2 cl, 2 lab hr/wk, 3 cr—The student will learn to transcribe letters from voice writing equipment with emphasis on punctuation, spelling, and grammar taught on a "progress-at-your-own rate" basis. Mailability standards will be stressed. Prerequisite: SS 122.

SS 2.601, Legal Transcription and Terminology, 5 cl hr/wk, 3 cr—By specialized learning experiences, the student will learn to identify, pronounce, and spell commonly used legal terms and apply knowledge to usual legal situations and transactions. Prerequisite: SS 570.

SS 2.606, Medical Terminology for the Legal Secretary, 5 cl hr/wk, 3 cr—The student will learn to identify, pronounce, and spell the more common and specialized legal terms and the more commonly used medical terms applied in law practice.

SS 2.610, Legal Office Work, Experience Seminar, 1 cl, 15 lab hr/wk, 3 cr—This seminar and internship places the student in the office of a practicing attorney, preparing through actual experience under
guidance and supervision for employment in a law office. The student will put into practice office skills, techniques, and knowledge learned in legal secretarial courses and will experience other situations specific to the office where he or she will intern 151ab hours per week. Prerequisite: Sixth term status in Legal Secretary program.

SS 2.650, Professional Secretarial Procedures, 8 cr hr/wk, 6 cr—Upon completion of this class the student will be able to employ accepted techniques in handling typical administrative level secretarial duties such as the processing of records and reports, the making of decisions within the province of the secretary, the development of guidelines and procedures manuals, the planning and organization of meetings and seminars, the solving of problems involving interpersonal relationships, and the use of technical terms relating to several types of businesses.

SS 2.651, Cooperative Office Experience, 1 cr, 15 lab hr/wk, 3 cr—The student will participate in a supervised laboratory and seminar activity, learning to apply to the actual working world the knowledge and skills acquired in the Career Secretary program and particularly in the Professional Secretarial Procedures class.

SS 9.701, Office Skills Brush Up—The student will "brush-up" or refresh skills, alternating between subjects and machines as desired, for self-improvement. A certificate of achievement may be issued showing what has been studied and the degree of proficiency attained. No credit is given toward a degree. The student is enrolled in this program for a minimum of four weeks with the possibility of extending the training for a longer period, if desired. Tuition is based on clock hours of attendance. Initial payment is made for four weeks in advance; thereafter, for at least two weeks in advance.

Portland Community College offers classes in this subject area in locations throughout the community such as Accounting for Small Business, Apartment Block Management, Bookkeeping, Brief Hand, Business English, EEO Obligations and Discriminations, Estate Planning Personal, Investing in Gold and Silver, Investments, Office Machines, Office Skills, Personal Income Tax Preparation, Real Estate Investment, Real Estate Licensure, Real Estate Management and Math, Real Estate Trends, Securities and Investments, Shorthand, Small Business Bookkeeping, Solving Small Business Sales Problems, Taxation for Small Business, Typing — Multi-level and Refresher. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact:
James Van Dyke
Dean
Lewis Douglas
Department Chairman

Instructors:
Maurice (Cliff) Boley
Business Administration
Accounting
Margaret Carson
Secretarial Science
James Cassidy
Business Administration
Accounting
Helen Clauchn
Secretarial Science
James L. Delury
Business Administration
Accounting
Alma George
Secretarial Science
Ethylmae Hanson
Secretarial Science
Shirley Hewitt
Secretarial Science
Eileen Johnson
Legal Secretary
Secretarial Science
Donald Johnson
Business Administration
Secretarial Science
Melissa Martinson
Business Administration
Accounting
Val Miller
Marketing
Merchandising
Ethel Nordgaard
Secretarial Science
Frances Scarrow
Secretarial Science
John Sundberg
Business Machines
Secretarial Sciences
## Data Processing

The Data Processing department offers three career programs - Keypunch Operator, Computer Operator, and Computer Programmer - and introductory courses for students who want a general knowledge of data processing.

### Introductory Courses

The introductory courses are designed for students interested in an overview of the data processing field.

#### EDP 2.100, Survey of Electronic Data Processing, 4cl, 1 lab hr/wk, 4 cr
- This course is designed specifically for business and other non-transfer students.

#### BA 111, The Computer in Business, 4cl, 1 lab/hr/wk, 4 cr
- This is a transfer course intended to fulfill the requirements for Majors 111 in the state universities for business majors.

#### CS 233, Introduction to Numerical Computation (FORTRAN), 4 cl, 2 lab hr/wk, 4 cr
- This transfer course is designed for students majoring in scientific programmes.

## Keypunch Operator

**Job Description** — The keypunch operator converts source documents into machine-acceptable form using a keypunch machine.

**Opportunities** — Excellent.

**Potential Earnings** — $80-$117 per week starting; $143 per week high.

**PCC Program** — Designed for those who want a general knowledge of computers. This program is designed to be completed in one year; however, for those who have a heavy work load or need to upgrade their skills to meet course demands, a longer period should be considered. A graduate from this program will have at least one year of operating practice and the skills necessary to qualify for employment. A one-year certificate is awarded at the completion of three terms.

### First Term

<table>
<thead>
<tr>
<th>Dept Crs No</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
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<td>Introduction to Programming</td>
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Minimum credits required for certificate — 42

## Computer Programmer

**Job Description** — The computer programmer designs and tests program logic and converts detailed logical description into instructions as specified by the program logic.

**Opportunities** — Good.

**Potential Earnings** — $148-$268 per week starting; $287 per week high.

**PCC Program** — Provides the student with the necessary skills to obtain a position as a junior programmer with two years of programming practice. Emphasis will be placed on education and practical experience. Candidates must have above average skills in mathematics and reasoning plus a capacity for detail and organization. Each candidate must complete an interview with the coordinator of the program. At the completion of the two years an associate of applied science degree will be awarded. Those students carrying a heavy work load should consider taking longer to complete the requirements. Those not having skill levels necessary to enter the program should consider taking one term of prior course work. This program gives a broad theoretical and practical training of planning, programming, and analysis of data processing problems.

### First Year

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<tr>
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<td>EDP 2.108</td>
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<td>EDP 2.115</td>
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<td>Mth 2.128</td>
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<td>CS 233</td>
<td>Introduction to Numerical Computation (FORTRAN)</td>
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<td>EDP 2.130</td>
<td>Tape/Disk Programming</td>
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<td>Sp 100</td>
<td>Basic Speech</td>
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<td>Mth 2.404</td>
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<td>EDP 2.120</td>
<td>Compiler Language II (COBOL)</td>
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<td>EDP 2.131</td>
<td>Operating Systems</td>
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<tr>
<td>EDP 2.106</td>
<td>Systems and Design</td>
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<td>Psy 1.546</td>
<td>Psychology and Human Relations</td>
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### Sixth Term

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<td>Advanced Programming</td>
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EDP 2.141 Field Project
EDP 2.123 System 360/370 Basic Assembly Language I 4 2 4
EDP 2.125 System 360/370 Basic Assembly Language II 4 2 4
EDP 2.127 Operating System 4 2 4
EDP 2.129 PL-1 Programming 4 2 4
EDP 2.111 Computer Operations I 4 cl, 3 lab hr/wk, 4 cr—The student will learn to operate a digital computer, the structure of computer systems, operating procedures, the use and care of peripheral devices, and do following: supervise the computer center with a minimum of outside supervision, use utility programs as required, use error recovery procedures, understand interdepartmental relations, relate the operation of several other computer systems, understand principles and differences of COBOL, TOS, DOS, and OS. Prerequisite: Computer Operations I.
EDP 2.112, Computer Operations II 4 cl, 3 lab hr/wk, 4 cr—The student will be able to understand and to do the following: supervise computer center with a minimum of outside supervision, utilize utility programs as required, use error recovery procedures, understand interdepartmental relations, relate the operation of several other computer systems, understand principles and differences of COBOL, TOS, DOS, and OS. Prerequisite: Computer Operations I.
EDP 2.108, Programming I 4 cl, 2 lab hr/wk, 4 cr—The student will learn to write simple programs in assembly language, gain thorough knowledge of basic assembly language, and understand its use, and learn simple program logic. Prerequisite: EDP 2.110 Introduction to Programming or EDP 2.100 Survey of Electronic Data Processing and/or consent of department chairman.
EDP 2.109, Programming II 4 cl, 3 lab hr/wk, 4 cr—The student will be able to understand and do following: write programs demonstrating indirect addressing, subroutines with parameters, divide, receive, store, and retrieve, table manipulation, line control, and register control. Includes overview of Programming I fundamentals, introduces more sophisticated instructions, methods, and techniques. Prerequisite: EDP 2.108 Programming I or consent of department chairman.
EDP 2.110, Introduction to Programming 4 cl, 2 lab hr/wk, 4 cr—The student will learn basic programming principles of data processing, related mathematics, data representation, unit record equipment and digital computers, computer software and data processing systems. The student will have experience in the use of machine language programs, preparing test data, and using debugging aids; will be able to express numbers in decimal, binary, octal, and hexadecimal numbering systems; and will recall the basic functions of a computer. Basis for all programming courses.
EDP 2.111, Computer Operations I 3 cl, 3 lab hr/wk, 4 cr—The student will learn to operate a digital computer, the structure of computer systems, operating procedures, the use and care of peripheral devices, and follow typical machine room run procedures. Student will acquire "hands-on" experience as a lead operator, assistant operator, and control clerk.
EDP 2.112, Computer Operations II 3 cl, 3 lab hr/wk, 4 cr—The student will be able to understand and to do the following: supervise computer center with a minimum of outside supervision, use utility programs as required, use error recovery procedures, understand interdepartmental relations, relate the operation of several other computer systems, understand principles and differences of COBOL, TOS, DOS, and OS. Prerequisite: Computer Operations I.
EDP 2.115, Programming the Small Business Computer (RPG II) 4 cl, 2 lab hr/wk, 4 cr—The student will learn to write programs using the RPGII language and become familiar with card, printer, tape, and disk operations. Student will learn and use Operational Control Language to run his programs. Prerequisite: EDP 2.110 Introduction to Programming or EDP 2.100 Survey of Electronic Data Processing or prior data processing experience.
EDP 2.120, Compiler Language II—COBOL 4 cl, 2 lab hr/wk, 4 cr—The student will learn to write simple programs in assembly language, gain thorough knowledge of basic assembly language, and understand its use, and learn simple program logic. Prerequisite: EDP 2.110 Introduction to Programming or EDP 2.100 Survey of Electronic Data Processing and/or consent of department chairman.
EDP 2.123, IBM 360 Basic Assembly Language 4 cl, 2 lab hr/wk, 4 cr—The student will learn basic instructions for this language as used on IBM 360, Univac, RCA computers. Problems solved using appropriate strategies. Prerequisite: Accomplished programming skills or consent of instructor.
EDP 2.124, IBM 360/370 Operation System 4 cl, 2 lab hr/wk, 4 cr—Continues BAL! The student will use more advanced instructions to solve more difficult problems. Prerequisite: BAL I or consent of instructor.
EDP 2.127, IBM 360/370 Operation System 4 cl, 2 lab hr/wk, 4 cr—The student will receive a comprehensive overview of the IBM 360/370 Operating System and learn to use the Job Control Language and utilities. Prerequisite: Previous programming or operation experience.
EDP 2.129, PL-1 Programming 4 cl, 2 lab hr/wk, 4 cr—The student will learn PL-1 programming language and demonstrate his/her ability by programming several ex-
EDP 2.130, Tape/Disk Programming, 4cl, 2 lab hr/wk, 4cr—The student will solve problems related to tape disk programming and do extensive work involving file structures, program logic, and file update. Programming in Basic Assembly Language. Prerequisite: EDP 2.109, Programming II.

EDP 2.131, Operating Systems, 4cl, 2 lab hr/wk, 4cr—The student will solve problems using the operating system software to advantage. Techniques will include segmentation, foreground/background, sorting, and program maintenance. Programming in Basic Assembly Language. Prerequisite: EDP 2.109, Programming II.

EDP 2.132, Advanced Programming, 4cl, 2 lab hr/wk, 4cr—The student will use skills to solve advanced programming problems involving use of advanced instructions and techniques. Prerequisite: EDP 2.130, Tape/Disk Programming.

EDP 2.139, Communication System, 4cl, 2 lab hr/wk, 4cr—Basic concepts in designing communication systems. The student will solve case examples using principles learned and write programs in assembly language using communications monitor. Prerequisite: Previous programming experience.

EDP 2.141, Field Project, 1cl, 12 lab hr/wk, 6cr—The student will be assigned an individually selected project of practical value. Student will plan project and carry out all phases of system design, machine programming, design of forms, testing or representing data, writing of operational procedures. Demands practical application of skills and techniques acquired in previous courses.

EDP 2.150, Data Processing Management, 3 cl hr/wk, 3cr—The student will explore problems in computer facility management. Topics include personnel policies, equipment acquisition, supplies, scheduling of work, and in-service training. Prerequisite: Employment in data processing field.

BA 111 (T), The Computer in Business, 4cl, 2 lab hr/wk, 4cr—Students will learn to examine a wide range of methods of processing data with emphasis on common business applications. Enough detail about these methods is presented to allow the student to understand their affect on the design of a data processing system. The student will also develop several computer programs using a contemporary programming language. Prerequisite: BA 101, Introduction to Business or consent of instructor.

CS 233 (T), Introduction to Numerical Computation (FORTRAN), 4cl, 2 lab hr/wk, 4cr—The student will learn basic principles of computation, programming a computer using FORTRAN. At the completion of this course the student should be able to determine the kinds of problems for which FORTRAN is particularly useful.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number (e.g., Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g., RM 5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact:

Ray Smith
Dean, College Services
Tom Crowder
Department Chairman

Instructors:

Computer Operations
Mike Miller

Computer Programming
Gerald McReynolds
Roy Parkins
Barbara Raz

Keypunch
Pauline Ellis
Dental Services

Portland Community College offers a variety of training opportunities in dental services including Dental Assistant, Dental Hygiene, and Dental Technology.

Due to an increasing interest in dental careers, Portland Community College receives more applications than facilities can accommodate. Also, because certain skills and aptitudes are required by the health professions, some entrance requirements and admissions procedures have been established.

Opening date for applying for admission to the dental programs or any health service program is January 1.

Information on additional admission procedures will be forwarded to each applicant upon receipt of his or her inquiry or application. Inquiries should be directed to: Health Professions Admissions Office, Portland Community College, 12000 S.W. 49th Avenue, Portland, Oregon 97219, phone: 244-611.

Due to the unique responsibilities involved in the practice of clinical laboratory sciences in the health professions programs, each individual program reserves the right to require that a student who appears unsuited for a program be counseled into another area of study at the college.

Dental Assistant

Job Description—The dental assistant is a member of the oral health team which includes the dentist, the hygienist, the assistant, and the laboratory technician. The assistant works directly with the dentist in treating the patient. He or she uses instruments and equipment in the dental office and other types of impressions for use by the dentist. Safety regulations, various supplies, and vocabulary words relating to the above items are also stressed.

The student will learn how to mix both reversible and irreversible hydrocolloid impression material. Upon completion of an impression, the student will pour the impression into a mold to produce a replica until satisfactory radiographs are produced, stressing the importance of correct processing, mounting, and filing procedures.

Student assignments enable the students to use acquired skills in a clinical environment. Various exposure techniques are practiced which can be applied to patients who need special attention.

Students are prepared for the Oregon State Radiological Proficiency Certification Examination and, in addition to intra-oral radiographs, they will also be required to expose extra-oral films.

The student will acquire basic knowledge of the physical and chemical properties of dental materials, according to the specifications and standards of the American Dental Association. The student will be able to select the proper material and armamentarium, measure and manipulate dental amalgam, cements, composites, rubber base impression materials, and synthetic resins for use by the dentist. Safety regulations, various supplies, and vocabulary words relating to the above items are also stressed.

The course will cover the sciences of metals from direct filling gold, its tarnish and corrosion properties, to the preparation of a wax pattern, and investing and casting of a metal pattern.
gold inlay or crown. The student will also learn the principal causes of defective castings and various abrasive and polishing agents used in dentifrices. Students will review material covered the first two terms in preparation for the American Dental Assistants Certification exam.

DA 5.537, 5.538, 5.539, Clinical Procedures I, II, III, 1/2/1 cl hr/wk, 1/2/1 cr
This lecture series will introduce the student to all chairside aspects of dental assisting.

First term the student will learn about health histories and how to chart the work existing in the patient’s mouth and work to be done. Emergency procedures and first aid, preparation of local anesthetics, syringes, burs, amalgam, composite, general extraction set-ups, and instrumentation are covered with the aid of slides, overhead transparencies, and films.

Second term the student learns additional skills in specialized procedures such as complex or impacted extractions, various forms of surgical procedures, and how to assist for crown and bridge, gold foil, and endodontics. Additional information is given on asepsis and sterilizing techniques.

Third term the student will learn about dental considerations, history, professional organizations, areas of service, personnel policies. Guest speakers may be scheduled.

DA 5.506, 5.507, 5.508, Clinical Procedures Laboratory I, II, III, 5/6/6 lab hr/wk, 2/3/3 cr — The student will apply the skills learned in clinical procedures lectures. The school provides the setting with graduate dentists as staff members and actual patients from the student body, staff, and community duplicating a dental office.

In first term the student learns how to operate the various pieces of equipment found in a dental operatory, seat and dismiss patients, set up and dismantle instrument tray set-ups, sterilizing and disinfecting procedures. The student will also alternate in one of three assigned areas, as the chairside assistant who passes and receives instruments, as the roarer who mixes materials and locates additional supplies, and as the observer who watches the work of the dental assistant.

Second term the student learns and assists with various surgical procedures, extractions, endodontics. A portion of the lab time is devoted to procedures such as application of rubber dam, polishing amalgam restorations, both on a mannequin with plaster models and on fellow students.

Third term finds the student continuing with polishing procedures, application of topical fluoride, and preventive education with the patients in the clinic.

This course will aid the student in preparing for practical board exams.

DA 5.540, 5.541, 5.542, Expanded Duties I, II, III, 1/1/1 cl hr/wk, 1/1/1 cr — The student learns the practical application of basic psychology to dentistry and to patient attitudes and their dental problems. The student is instructed in the following expanded duties as approved by the Oregon State Board of Dental Examiners:

Rubber Dam Application — The student will be able to explain the use of rubber dam, prepare the patient, place the rubber dam, and upon completion of the procedure, completely and safely remove the rubber dam.

Patient Education and Preventive Home Care — The student will study control of dental disease by preventive methods, recognize the need for patient education, and understand patient behavior and motivation. Also, the student will organize a patient preventive dentistry control manual.

Amalgam Polishing — The student will be able to explain the need for polishing amalgam restorations, arrange the proper instruments, correctly polish and evaluate restorations.

Fluoride Applications — The student will learn the role of fluoride in preventive dentistry and community health and apply topical fluoride to the teeth.

Cement Removal — The student will learn to identify, sharpen, and correctly manipulate the necessary instruments to remove cement from orthodontic bands.

The student will review subjects taught during the previous terms, review the skills acquired in the dental clinic, and be prepared for the Dental Assistant Certification Examination given by the Oregon State Board of Dental Examiners.

DA 5.551, 5.552, Dental Office Procedures I, II, 1/1 cl hr/wk, 1/1 cr — The student will learn various office methods for communications with the public — greeting the patient, telephoning techniques, and writing letters. The student will be able to maintain the appointment book, properly fill out appointment cards for patients, identify various needed office records, and set up a preventiverecall system.

The student will be able to demonstrate different types of patient records and filing techniques, procedures for ordering supplies, cleaning and disinfection, maintaining an index of inventory control. The student will review various methods employed in a collection system and the bookkeeping, accounting, and banking procedures. Guest lectures and films will be utilized in direct relation to the subject taught.

DA 5.550, Seminar, 3 cl hr/wk, 3 cr — The student will review the subjects taught during the preceding term and brush up on skills acquired in the dental clinic, dental materials lab, and radiology lab.

He/she will be prepared for the Dental Assistant Certification Examination and the Oregon State Radiological Proficiency Exam.

HEC 7.300, Nutrition (Dental Assistant), 2 cl hr/wk, 2 cr — The student will recognize the factors affecting food intake and consequences of poor nutrition intake. He/she will recall the nutrients, their functions, sources, and place in the normal adequate diet and be able to use this knowledge to instruct dental patients in adequate nutrition including cariostatic foods.

Sci 5.500, Human Biology, 3 cl hr/wk, 3 cr
A one-term course in which the student will survey in a general way the structure and functions of the various systems of the human body. The student will learn in the basic concepts of human anatomy and physiology as they pertain to the normal human body.

Dental Hygiene

Job Description — The Registered Dental Hygienist (R.D.H.) is a licensed professional oral health educator and clinical operator who, as an auxiliary to the dentist, uses scientific methods of controlling and preventing oral disease and aids individuals and groups in obtaining and maintaining optimum oral health. Specific duties include: exposing and processing x-ray films, cleaning and polishing teeth and restorations, applying topical fluorides as a preventative measure, and educating patients in oral health practices.

Subject to the rules and regulations of the Oregon State Board of Dental Examiners and under the personal direction of a licensed dentist, the dental hygienist may employ such technical procedures as approved by the board. These procedures may include the use of drugs, administering anesthetics, either general or local, exposing and processing dental x-ray films, removing and inserting temporary dressings, and generally clearing the area after work has been performed by the dentist.

Opportunities — Opportunities for employment are readily available throughout the United States. Limited opportunities exist in foreign countries. The dental hygienist, working under the supervision of the dentist, has a major responsibility in the expanding field of preventive dental care. The field of dental hygiene is rewarding to anyone interested in becoming an integral member of the allied health professions.

Potential Earnings — The current starting salary in the Portland area is approximately $45 per day. An experienced dental hygienist is capable of earning more than $50 per day. Most of the opportunities exist in association with private dental practitioners; however, there is a need for dental hygienists in federal, state, and municipal public health programs, in the Armed Forces, and in teaching institutions.

PCC Program — PCC offers an accredited two year dental hygiene curriculum. The program is open to male and female students. Sixteen students are admitted each September. Upon the successful completion of the academic classes, the student is eligible to take the written National Board Examination in March of the second year. The student is awarded a Dental Assisant of Applied Science in Dental Hygiene degree after satisfactory completion of the dental hygiene program and 18 hours of general studies courses. A graduate of the program who has passed the National Board Examination (written) may take the state (or any other state) Board examination (clinical practice). The state licensing boards grant to those who have passed the practi-
ecause the dental hygiene courses are each built upon previously acquired knowledge and skills, all classes are sequential. Completion of each term’s classes is a prerequisite for continuing on to the next term. Clinical experience is based upon performance objectives which must be completed at the end of the first year before the student can progress to second year standing. Failure to do so will cause the student to be placed on probation. If the student continues being delinquent, he or she will be dismissed from the program.

Student performance for dental hygiene courses is expected to remain at “C” level or above.

Student employment in any field during the school term is strongly discouraged. Attendance at school and the necessary study habits are highly demanding of time in order to maintain a high level of performance. High professional standards of conduct are also expected of all students, both on and off the campus. Such behavior is expected by the Accreditation Committee of the American Dental Association who permit this program to function at PCC.

Minimum credits required for degree-116

DH 109 (T), Dental Radiology I, 1 cl, 3 lab hr/wk, 2 cr — The student will acquire basic knowledge concerning the discovery, history, development, physical properties, and hazards of dental radiation. The student will practice intra-oral techniques to a training replica until satisfactory radiographs are produced, stressing the importance of correct processing, mounting, and filing procedures.

DH 110 (T), Dental Radiology II, 1 cl, 3 lab hr/wk, 2 cr — Patient assignments enable the student to use acquired skills in an clinical environment. Various exposure techniques are practiced which can be applied to patients who need special consideration. Prerequisite: DH 109.

DH 111 (T), Dental Radiology III, 1 cl, 3 lab hr/wk, 2 cr — The student will demonstrate his or her ability to note the difference between normal and irregular conditions as they appear on the radiograph.

DH 112 (T), Pre-Clinical Dental Hygiene, 2 cl, 3 lab hr/wk, 2 cr — The student will learn basic theory that will be applied to patient care while operating in the dental hygiene clinic.

DH 113 (T), Pre-Clinical Dental Hygiene Laboratory, 9 cl, 9 lab hr/wk, 3 cr — The student will demonstrate basic technical dental hygiene skills that are necessary for patient care. Practice will be upon a mannequin.

DH 114 (T), Clinical Dental Hygiene I, 2 cl, 2 lab hr/wk, 2 cr — This course is a continuation of basic dental hygiene theory. Prerequisite: DH 117 and DH 118.

DH 115 (T), Clinical Dental Hygiene Laboratory I, 9 lab hr/wk, 3 cr — The student will demonstrate additional technical skills as to provide proper patient care in the dental hygiene clinic. Prerequisite: DH 117 and DH 118.

DH 125 (T), Clinical Dental Hygiene Laboratory II, 9 lab hr/wk, 3 cr — The student will utilize previously demonstrated clinical skills while providing patient care in the dental hygiene clinic. Prerequisite: DH 122.
The student will identify and describe the nonclinical responsibilities of a dental hygienist in a dental office.

The student will learn to identify the legal restrictions and responsibilities associated with the practice of dentistry.

The student will apply effective techniques to the teaching of patient self care therapy in the private office and community. Prerequisite: DH 224.

The student will be able to classify commonly used drugs according to their pharmacological effects upon the body. Prerequisite: DH 225.

The student will develop the ability to describe the cause of dental caries and periodontal disease and identify appropriate measures for controlling these diseases.

The student will familiarize himself with community projects by direct participation.

The student will describe the current methods of therapy for periodontal disease to include those established by the dentist as well as the dental hygienist with emphasis on the supportive role of the dental hygienist in periodontal therapy. Prerequisite: DH 260.

The student will perform selected periodontal procedures assigned to the dental hygienist, providing post-surgical care for periodontal patients.

The student will review and discuss all aspects of dental hygiene education and be prepared to take national and state licensing examinations.

The student will be prepared to successfully complete the clinical portion of Oregon's (and other states') dental hygiene licensing examination. Skills emphasized are appointment planning and control, and providing total patient care. Prerequisite: DH 223.

The student will familiarize himself with periodontal charting, evaluating the visible signs of periodontal disease as seen on projected Kodachrome slides and radiographs. Must have completed DH 129.

The student will learn to describe guidelines used to develop a public health program.

The student will familiarize himself with community projects by direct participation.

This is a fundamental course for most allied health students.

Job Description — The dental technician constructs dental appliances for the dentist either in a dental laboratory or a dental clinic.

Opportunities — Better outside metropolitan area; many western states desiring technicians.

Potential Earnings — From $2.75 per hour to start, increasing to $410 to $5 per hour after
one year. Depending upon further training and experience, salary may increase to $1300 per month.

PCC Program—Prepares students to become immediately employable and productive as dental technicians with dentists, commercial dental laboratories, federal or state agencies, or as representatives for companies manufacturing and distributing dental supplies. The student entering the Dental Technology program may elect either the certificate program or associate of applied science degree. For the certificate, the student takes the lectures pertaining to dental technology and the anatomy. For the associate degree, he/she may substitute any desired general studies course to total 18 hours credit.

Admissions—Contact the Health Profession Admissions office for admission requirements and procedures.

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<th>Class/Lab Cr</th>
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DT 5.850 Dental Seminar 2 2
DT 5.808 Dental Technology Laboratory VI 20 5
Elective 3 3

Totals 11 20 16

Minimum credits required for certificate—74

Minimum credits required for degree—92

DT 5.506, Oral Anatomy, 3 cl hr/wk, 3 cr
The student will learn the anatomy of the oral cavity (skeletal, muscular, vascular, and neural) as it relates to dental prosthetics. He/she will gain an understanding of head and neck anatomy relevant to dental technology.

DT 5.630, Dental Technology, 2 cl/hr/wk, 2 cr—The student will become acquainted with making dies, adapted to selected teeth, and to do the final assembly of the partial denture.

DT 5.850, Dental Seminar IV, 20 lab hr/wk, 5 cr—The student will learn techniques of precision attachment for crown and bridge and removable partials, implants, cleft palate obturators, bite openers, parallel pin technique for crown and bridge, stress breaker and hinge attachments, over denture and added denture techniques. He/she will be instructed in metal base dentures.

DT 5.850, Dental Seminar, 2 cl/hr/wk, 2 cr—The student will be provided with a complete review of all laboratory procedures and techniques used in the dental laboratory aimed at developing methods of solving technical problems that might occur in a working situation.

HE 250 (T), Personal Health, 3 cl hr/wk, 3 cr—The student will become acquainted with some of the personal health problems of men and women and their effect on family life. Includes study of mental health, physical fitness, nutrition, sexuality, communicable and degenerative diseases, drugs, safety, and environmental hazards.

HE 252 (T), First Aid, 3 cl hr/wk, 3 cr—The student will study first aid and safety procedures for a wide variety of injuries or illnesses. Successful completion of the
course meets certification standards of the American Red Cross.

Sci 5.500, Human Biology, 3 cl hr/wk, 3 cr - A one-term course in which the student will survey in a very general way the structure and functions of the various systems of the human body. The student will learn the basic concepts of human anatomy and physiology as they pertain to the normal human body.

Sci 5.945, 5.946, Science of Dental Materials I, II, 3/3 cl hr/wk, 3/3 cr - The student will study physical properties and chemistry of ingredients of dental materials used in the dental technology laboratory.

Course Numbering and Coding
General studies courses are designated by a two- or three-digit number (e.g. Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four-year institution of higher education.

Career program courses are assigned decimal numbers (e.g. DT 5.720).

For more information contact:
Dr. Arthur Stevens
Dean
Dr. Jerome Levine
Department Chairman
Instructors:
Dental Assistant
Emmy Singer, CDA
Nancy Sandvick, CDA
Denalis Berland, CDA
Dental Hygiene
Dr. James Deming
Carol Blesanz, RDH
Diane Hardiman, RDH
Dental Technology
Harold Volz, CDT
Leora Hass
Education

At Portland Community College a variety of programs are offered for students interested in careers in education. Programs currently offered include Media Assistant, and Elementary and Secondary Classroom Aide (paraprofessional). Specialized training is offered for junior high, high school, and community college vocational teachers. A student who wishes to become a certified teacher may take his/her first two years of study at PCC, then transfer to a four-year college or university to complete work on a baccalaureate degree. A paraprofessional career program to specialize in work with handicapped persons will be available September 1975. A partial listing of courses is included in this catalog.

Media Assistant

Job Description—The Media Assistant is trained to work with all aspects of media center operations including: 1) production of instructional materials such as charts, transparencies, and slide-tape shows; 2) operation of duplicating processes; 3) operation of duplicating processes; 4) operation of audio-visual equipment; 5) library operations; and 6) library skills which include technical processing, circulation procedures, use of reference materials, and operation of resource centers.

Opportunities—Good to excellent in public schools from elementary through college, some possibility in industry.

Potential Earnings—$400 to $525 per month starting.

PCC Program—One year certificate program. Emphasis is on planning and production of instructional materials, operation of audio-visual equipment, basic art, layout and design, and library skills. On the job training is part of the program.

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IMC 4.912 School Library Materials 2 3 2 3
Electives (choose at least two credit hours)
Ed 209 Practicum (School Experience) 3-9 hours credit
IMC 4.903 Audio-Visual Equipment II 4 2
SS 122 Typing II 5 2
IMC 4.918 Acquisition Techniques 2 2
IMC 4.919 Technical Processing 2 2 3
Def 4.127 Technical Illustration 2 6 5
VE 9.104 Display and Bulletin Boards 4 2

Third Term | | | |
| Ed 211 Practicum (School Experience) 3-9 hours credit | |
| Ed 207 Seminar (Independent Study) 3 3 |
| IMC 4.906 Instructional Materials Production III 3 12 5 |
| Electives (choose at least two credit hours) |
| IMC 4.921 Circulation Procedures 1 1 |
| IMC 4.922 Reference Materials 3 3 |
| Art 2.315 Display and Advertising Layout 3 3 |
| SS 123 Typing III 5 2 |

Minimum credits required for certificate—45

IMC 4.900, Instructional Materials Orientation, 2 cl/hr/wk, 2 cr. The student will learn to apply instructional materials in the teaching/learning process, completing the following modules in this class: school aide, school law, free teaching materials, grooming, work relations, media field trip, machine identification, software identification, job applications, resume writing, employment, and library skills.

IMC 4.902, Audio-Visual Equipment I, 4 cl/hr/wk, 2 cr. The student will learn to operate, make minor adjustments, and clean basic audio-visual equipment. The student will complete the following modules in this class: overhead projector, opaque projector, Bell & Howell 16mm projector, RCA 16mm projector, Bell & Howell 8mm projector, standard slide and filmstrip, carousel slide projector, record player, cassette tape recorder, open reel tape recorder.

IMC 4.903, Audio-Visual Equipment II, 4 cl/hr/wk, 2 cr. The student will learn to make minor adjustments and repairs to basic audio-visual equipment. In addition, the student will learn to repair 16mm and 8mm films, filmstrips, audio tapes, and other media materials. The student will complete the following modules in this class: film splicing, audio formats, tape composition and configuration, media ware and repair, audio unit, audio maintenance, checkout ware.

IMC 4.904, 4.905, 4.906, Instructional Materials Production I, II, III, 3, 12 lab/hr/wk, 5 cr, 22 modules. The student will learn to prepare instructional media, completing the following modules: hot press, lettering, instructional boards, handmade overheads, mounting overheads, Thermafax, die-cut, spirit duplicator, multi-media kit, notebook, mimeograph stencil, AB Dick mimeograph, Gestetner mimeograph, headline, electronic stencil, storyboard cards, 314 film pictures, visual maker, slide series, 126 super 8 mm film, slide tape presentations, special projects.

IMC 4.911, Survey of School Library Procedures, 2 cl/hr/wk, 2 cr. The student will become acquainted with acquisition, cataloging, processing, and circulation skills as procedures for operating school libraries. The student will demonstrate his/her ability by actually performing these tasks in model situations established by the instructor.

IMC 4.912, School Library Materials, 2 cl/hr/wk, 2 cr. The student will become acquainted with tools for selection of print and non-print materials and will explore some of the problems in selection. The student will identify and use some basic reference materials and will become acquainted with materials for teaching library skills and promoting interest in literature.

IMC 4.917, Television Production I, 2 cl/hr/wk, 2 cr. The student will learn to operate video tape recorders, completing the following modules: video tape recorders, operation of video tape recorders, program productions, studio settings, sets and backgrounds.

IMC 4.918, Acquisition Techniques, 2 cl/hr/wk, 2 cr. The student will learn basic acquisition techniques. The student will identify various book selection aids and become familiar with various print and instructional media jobbers.

IMC 4.919, Technical Processing, 2 cl/hr/wk, 2 cr. The student will classify books using the Dewey Decimal Classification system, will use Sears List to assign subject headings, and will type necessary cards for cataloged books. The student will practice preparation of books and periodicals for circulation and will learn some techniques for mending books.

IMC 4.921, Circulation Procedures, 1 cl/hr/wk, 1 cr. The student will learn to work with and identify various circulation methods of educational materials including files, records, renewals, reserves, and overdue materials.

IMC 4.922, Reference Materials, 3 cl/hr/wk, 3 cr. The student will identify and use general reference works, including dictionaries and encyclopedias. Student will identify and use selected special reference materials in various subject areas.

Art 2.312, Show Card Lettering, 1 cl/hr/wk, 2 cr. The student will study and demonstrate show card and poster layout using tempera paints and ink with instruction in brush and pen lettering.

Art 2.315, Display and Advertising Layout I, 1 cl/hr/wk, 1 cr. The student will study and demonstrate various types of advertising designs for various media. He/she will make roughs and dummies of ideas.

Art 2.322, Color, Line, Design, 1 cl/hr/wk, 2 cr. The student will study and demonstrate the elements of design: color, light, shape, line, and form.
Elementary and Secondary Classroom Aides
(Paraprofessionals)

Job Description—An aide's responsibilities include some or all of the following activities: assisting in classroom instruction and tutoring; duplicating materials; keeping class records; supervising lunchroom, halls, playground; assisting in school office and library; and grading some types of student work. The particular responsibilities assigned to an aide depend on the program and personnel in each school.

Opportunities—Fair to excellent in the Portland area, depending on voter approval of annual operating funds in each school district, the status of federal funds, and school staffing decisions.

Potential Earnings—$375-450 per month starting.

PCC Program—45 credit hour certificate with emphasis on field experience in public or private elementary and secondary schools; choice of electives in design of an individualized program.

The program has three purposes:
1. to train students for aide positions;
2. to allow students to progress toward teacher certification at a four year institution;
3. to provide exploratory experiences for students who are considering education as a career.

Students develop basic reading, writing, and arithmetic skills through individual tutoring and classes; participate in supervised experiences as an aide in a classroom; and develop special areas of competence (classroom, office/clerical, physical education/playground) through short term or quarter long courses.

A certificate is awarded at the successful completion of 45 credits. In addition, eighteen hours of the education core are transferable to Oregon's four year institutions (Ed111, 207, 209, 210, 211, Psy111). Other institutions may accept additional credits. If you plan to continue your education training, check with the institution to which you will be transferring.

Certificate Requirements
1. 12 credit hours from the practicum-seminar core (Ed111, 207, 209, 210, Psy111)
2. A currently valid Standard First Aid Card
3. 32 credit hours from special cluster areas of courses approved by the education staff

Basic Skills
Wr 11,12,13 Basic Preparatory Reading and Writing 3 each
Mth 4.200 Basic Mathematics 4

Core
Ed 111 Contemporary Education 3
Ed 211 Contemporary Education 3
Psy 111 Personality and Development 3
Ed 210 Introduction to American Education 3
Ed 207 Seminar 3
Ed 209 Practicum 3

Classroom
VE 9.102 Tutoring and Small Group Instruction in Reading 2
VE 9.103 Tutoring and Instructional Practices for Paraprofessionals 2
VE 9.104 Display and Bulletin Boards Mathematics 2
VE 9.105 Mathematics Workshop 3
IMC 4.902 Audio-Visual Equipment 2
Art 110,111 Recreational Use of Arts and Crafts 2
Mth 191,192,193 Mathematics for Elementary Teachers 3
Art 2.312 Show Card 2
VE 9.107 Lettering 2
VE 9.108 Distar II 2

PE/Playground
PE 234 Relays and Games of Low Organization 1
VE 9.201 Elementary PE/Playground Activities 2
VE 9.202 First Aid for Public Schools 1
HE 252 First Aid 3

Other approved professional P.E. courses

Office/Clerical
SS 121,122,123 Typing I, II, III 2 each
VE 9.301 School Office Skills and Procedures 2

Other approved secretarial science courses Minimum credits required for certificate 45

*Variable credit arrangement. Partial credit available for completion of individual modules. Figure indicates maximum in this area.

Basic Skills—Through individual tutoring and skill development courses a student will be expected to attain the basic level of reading, writing, and arithmetic skills required of classroom aides. Tests developed by the Mathematics and Language Arts departments will be used to determine a student's level of achievement. A student may take the tests as many times as needed in order to pass this requirement.

Core: Practicum (Ed209, 210, 211)—After a three week orientation period each student will spend eight to ten hours per week in a supervised school setting. Cooperating school personnel and the PCC education staff will evaluate the job performance of aides in training by completing evaluation forms and periodic conferences.

Core: Seminar (Ed111, 207, Psy111)—In a seminar setting the student will examine his/her daily experiences in the schools by discussing his personal reactions to school situations, students, and personnel, the roles of public schools in American society, and financial, legal, and administrative implications for aides.

Clusters—Through a variety of learning experiences, short term courses, quarter long courses, and individual study, the student will develop special skills in one of three areas (classroom aide, office/clerical aide, physical education/playground aide). The clusters may be taken on an interest basis by school district employees in the area.

VE 9.102, Tutoring and Small Group Instruction in Reading, 2 cr—The student will show familiarity with the concept of reading instruction and the aide's role in that instruction, will demonstrate ability to work with students and teacher in establishing and carrying out one to one tutoring activities, will demonstrate ability to work with small reading groups, will demonstrate ability to work with small reading groups, will demonstrate use of drills in supplementing other instruction, will keep proper records of student progress in reading.

VE 9.103, Tutoring and Instructional Practices for Paraprofessionals, 2 cr—Student will demonstrate familiarity with current methods and approaches to math and language arts, will demonstrate ability to work with students on one to one and small group activities utilizing materials and techniques used in practicum assignments, will keep student records appropriate to subject matter.

VE 9.104, Display and Bulletin Boards, 2 cr—The student will demonstrate ability to make a classroom attractive and to include instruction using approaches above.

VE 9.105, Mathematics Workshop, 3 cr—Students will construct mathematics
games, know how to play them, and what mathematics objective they fit. Reference materials for games and mathematics terminology will be developed.

VE 107, Basic Distar, 2 cr—A basic orientation to the Distar programs. Students will develop the basic skills required to use Distar Reading I and apply these skills to other instructional areas.

VE 108, Distar II, 2 cr—Continuation of Distar programs with overview of Reading I, III, Arithmetic I, and Language.


Objectives: The student will demonstrate at least eight activities in each of the above categories that they choose.

Unit 6. Grade School Physical Education and Playground Equipment. Objectives: The student will be familiar with the uses of common commercially made and “home-made” equipment.

VE 202, First Aid for Public Schools, 1 cr—The student will pass requirements for a Standard First Aid card. (Instruction can be through Portland Community College, American Red Cross, or other agency qualified to grant standard card.)

VE 301, School Office Skills and Procedures, 2 cr—Unit 1. Filing. The student will learn the purposes of filing, will be proficient in filing according to different standard systems, and will know how to adapt to idiosyncratic systems.

Unit 2. Record Keeping. The student will understand and will be proficient in completing the operations and forms involved in the above named areas.

Unit 3. Telephone Answering. The student will correctly use the holding, transferring, and extension features of the telephone; will demonstrate different techniques of answering, message taking, etc.; and will understand what kinds of responses are inappropriate or annoying. Unit 4. Making appointments. The student will demonstrate use of several different kinds of appointment calendars and will be sensitive to different individual appointment making procedures.

Unit 5. Adding machine. The student will be proficient in the use of a ten key adding machine.

Unit 6. Office Procedures: Role and Responsibilities. The student will understand role of clerical aide in relation to administrator, secretaries, custodial personnel, and teachers and will be aware of the importance of positive personal and telephone contact with parents and other members of the community.

Art 110, 111 (T), Recreational Use of Arts and Crafts, 4 cr/hr/wk, 2 cr—The student will be introduced to and crafts through study of basic techniques, principles, and elements of various art practices. A series of lecture demonstrations will be followed by studio work, covering the maximum possible number of activities. Material covered will be the basis for organizing a recreational craft program.

Art 2312, Show Card Lettering, 1 cr, 3 lab hr/wk, 2 cr—The student will study and demonstrate show card and poster layout using tempera paints and ink with instruction in brush and pen lettering.

MTH 191 (T), Mathematics for Elementary Teachers, 3 cr/hr/wk, 3 cr—The basic operations (addition, subtraction, multiplication, and division) are emphasized and analyzed. Beginning with the idea of a set and operations on sets, the student will study number numerals and the basic operations on the set of whole numbers and algorithms. MTH 191 (T), Mathematics for Elementary Teachers, 3 cr/hr/wk, 3 cr—After studying some ideas of number theory, the student will apply these to the basic operations on the set of positive rational numbers (“fractions” and “decimals”) and applications of these operations using number sentences. Appropriate topics of geometry are also included from an inductive point of view.

Vocational Teacher Education

(Teacher education for people in industry)

People with experience in business and industry can qualify to teach in junior high schools, high schools, and community colleges. Part of their preparation is the development of the knowledge, sensitivities, and skills required of teaching. To qualify for an Associate of Applied Science in Vocational Education degree a student must have a minimum of three years vocational experience and must satisfactorily complete 90 credit hours of study which include the five professional courses listed below.

Using the Associated of Applied Science in Vocational Education degree a student must have a minimum of three years vocational experience and must satisfactorily complete 90 credit hours of study which include the five professional courses listed below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Portland Community College professional courses</td>
<td>15-18</td>
</tr>
<tr>
<td>2.</td>
<td>Effective courses</td>
<td>9-12</td>
</tr>
<tr>
<td>3.</td>
<td>General Education courses including nine hours in communications</td>
<td>18</td>
</tr>
<tr>
<td>4.</td>
<td>Evaluation of previous work experience and occupational preparation (competency examination, approved apprenticeship program, or selected Portland Community College courses)</td>
<td>(45 maximum)</td>
</tr>
</tbody>
</table>

Total 90 credit hours (minimum)

*The associate degree requires 18 hours of general education courses.

Courses are open to anyone employed in education, business, or industry. The coordinator of programs in education can provide additional information about the Vocational Teacher Education degree.

In some areas this degree is block transferable to Oregon State University and applied toward a B.A. in Vocational Education.

These courses also are approved by the State Board of Cosmetology for teaching and maintaining teacher certification in the field. For information on the associate degree program in cosmetology, see Home Economics, Cosmetology.

VE 9000, The Philosophy and Techniques of Teaching at a Community College or Public School, 3 cr/hr/wk, 3 cr—The student will explore the philosophy and commitments of education at community colleges or public schools. He/she will study the strategy of developing effective instruction based on measurable competencies.

VE 9001, Evaluation Techniques, 3 cr/hr/wk, 3 cr—The student will study the evaluation of results as well as the evaluation of process. He/she will determine the limitations of using grades and curves as well as the limitations of attempting to measure intelligence by intelligence tests. He/she will construct evaluation devices for his own teaching area.

VE 9002, Psychology of Learning, 3 cr/hr/wk, 3 cr—The student will distinguish between learning and teaching as two separate processes that do not necessarily go on simultaneously in the classroom. He/she will study and evaluate recent as well as established research on learning patterns, growth, and development.

VE 9003, Human Understanding, 3 cr/hr/wk, 3 cr—The student will study the history of minority cultures and other groups subject to discrimination in the United States. He/she will examine means of enriching the learning process by utilizing the unique skills and experiences possessed by minority group members. He/she will understand the pervasive influence of poverty on individuals of any background.

VE 9004, Audio-Visual and Instructional Materials Production, 3 cr/hr/wk, 3 cr—The student will prepare overhead transparencies, color slides, audio tapes, and display materials as well as become acquainted with the IMC services at a community college. He/she will be expected to prepare a kit of teaching materials relevant to his individual subject matter area and learn to care for and operate basic audio-visual equipment.

Ed 209 (T), Practicum, 3-9 hr/wk, 1-3 cr—It is the goal of the field experience to provide (1) the school activities upon which realistic self-judgments and career plans can be made, (2) a setting in which instruction can be applied, and (3) opportunities for informal supplementation to on-campus instruction.
Handicapped Specialist
(Paraprofessional)

As of the printing of this catalog, this program was under development. Additional courses will be available September 1975.

Ed 207, Seminar, Introduction to the Exceptional Child, 3 cl/hr/wk, 3 cr—Students will demonstrate a familiarity with specific vocabulary words common to the area of exceptional children. The student will become aware of periodicals helpful in this area. He/she will become knowledgeable of life problems of exceptional children and their parents.

VE 9.106, Methods of Teaching Exceptional Children, 2 cl/hr/wk, 2 cr—The student will be able to identify children with various exceptionalities with the aid of diagnostic tools. The student will be able to specify when a special educational service is necessary and together with a special educator assist in development and implementation of a specific behavioral course.

Communication with the Deaf

American Sign Language classes are offered for both the deaf and the hearing through the office of Special Educational Services.

VE 9.110, Seminar: Communication with the Deaf I, 3 cr—Students will study basic principles of manual communication through non-verbal communication techniques, eye training, fingerspelling, and basic patterns of the American Sign Language. Information related to the History of Sign Language and the Deaf Community will be introduced. No prerequisite.

VE 9.111, Seminar: Communications with the Deaf II, 3 cr—Continuation of VE 9.110. Students will review basic sign language patterns with emphasis on additional sign vocabulary acquisition and improvement of receptive and expressive skills. A vocabulary of approximately 1,000 signs should be attained by the end of this course. Information related to the physical and psychological aspects of deafness will be introduced. Prerequisite: VE 9.110.

VE 9.112, Seminar: Communication with the Deaf III, 3 cr—Students will review basic skills and fingerspelling with emphasis on developing skills in the simultaneous method of communication. Idiomatic signs will be introduced as well as additional vocabulary to include Manual English signs. Information relating to the history of deaf education and specific methods and philosophies will be presented. Prerequisite: VE 9.111.

VE 9.220, Conversational Sign I, 3 cr—Through video tapes and film reading practice as well as social conversation with deaf adults, students will receive comprehensive study of the English idiom translated into Sign Language. A "laboratory set-

For more information contact:
James Van Dyke
Dean
Gaylon Huff
Department Chairman
Instructors:
Media Assistant
Rodney Bach
Nancy Kinneer
Communication with the Deaf
Sherry Andruus
George Natonick
Education
Vera Lund
## Electronics Services Technology

**Job Description** — The technician repairs radio and TV receivers, hi-fidelity and stereo sound equipment, tape recorders, and miscellaneous communications equipment. He/She may repair one specific type of equipment or may work with several types of equipment.

**Opportunities** — A moderate growth in opportunities is expected throughout the 70's.

**Potential Earnings** — Entry level wages vary from $80 to $120 per week. Experienced technicians earn from $120 to $240 a week. Generally, the inside service technician receives higher weekly earnings than do outside field technicians.

**PCC Program** — This four term program prepares students for entry into the electronic equipment maintenance and service field. Graduates of the program will be technicians qualified to test, build, repair, and maintain a variety of electrical-electronic equipment. A certificate is awarded at the successful completion of the program.

### Dept Crs Course Title Class/Lab Cr Hrs/Wk Hr

<table>
<thead>
<tr>
<th>Class</th>
<th>Lab</th>
<th>Wk</th>
<th>Cr</th>
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<tbody>
<tr>
<td>Basic AC</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Basic DC</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>AC-DC Radio</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Electron Tubes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Computations I</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Independent Study</td>
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<td>Totals</td>
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### Second Term

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<th>Cr</th>
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<tr>
<td>Basic AC</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Transistor Radio</td>
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<tr>
<td>Transistors</td>
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<tr>
<td>Computations II</td>
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<tr>
<td>Independent Study</td>
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<tr>
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<th>Wk</th>
<th>Cr</th>
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<tbody>
<tr>
<td>B&amp;W Television I</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>FM Radio</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Tube and Transistor Circuits</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>C.E.T. License Preparation</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Independent Study</td>
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<th>Lab</th>
<th>Wk</th>
<th>Cr</th>
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<tbody>
<tr>
<td>B&amp;W Television II</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Color Television</td>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Citizen's Band Radio</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Minimum credits required for certificate — 64**

**El 6.441** Basic DC, 4 cl, 4 lab hr/wk, 4 cr — A theory-lab course covering Ohm's Law, series/parallel resistive circuits, inductance, capacitance, Series and parallel R-C-L circuits and meters. The student will demonstrate class theory by applying principles of radio and television receivers.

**El 6.411** Basic DC, 4 cl, 4 lab hr/wk, 4 cr — The student will study and use tube testers, voltmeters, V.T.V.M.'s, capacitor checkers, isolation transformers, Sam's Photofacts and Index, and component identification in the tube type radios. He/She will practice troubleshooting techniques and repairing defective and/or "bugged" radios. Radio circuit theory is presented during the class lecture period.

**El 6.415** Independent Study, 5 hr/wk, 4 cr — The student will study and discuss diodes, triodes, pentodes, beam-power tubes, thyatrons, V-R tubes, amplification factor, mutual conductance, stage gain, and application of tubes as power rectifiers, r-f/i-f amplifiers, mixers and oscillators in radio receivers.

**El 6.424** Basic AC, 4 cl, 4 lab hr/wk, 4 cr — The student will study AC meters, alternators, motors and generators, batteries, circuit analysis, the sine wave, series/parallel AC circuits, the "i" operator, vectors, square root, and the use of the slide rule in problem solving. Binary arithmetic operations will be presented.

**El 6.422** Transistor Radio, 4 cl, 4 lab hr/wk, 4 cr — The student will apply troubleshooting techniques to the repair of defective and/or "bugged" transistor radios and amplifiers. Student will practice removing and installing transistors and other components on P-C boards. Transistor circuits found in radios will be analyzed and compared with equivalent tube circuits.

**El 6.423** Transistors, 2 cl, 3 lab hr/wk, 4 cr — In lecture the student will study transistor theory including the P-N junction, transistor circuits, and basic configuration. Student will analyze transistor characteristics with the aid of a transistor curve tracer.

**El 6.424** Computations II, 4 cl/hr/wk, 4 cr — The student will study basic algebra, equations, the "i" operator, basic trigonometry, graphs, and circuit problem solving, including binary numbers, basic Boolean algebra, and logical circuits.

**El 6.431** B & W Television I, 4 cl, 4 lab hr/wk, 4 cr — The student will discuss the television system, scanning and synchronizing, the composite video signal, picture tubes, power supplies, and video amplifiers. In the lab student will demonstrate class theory by troubleshooting defective and/or "bugged" television receivers.

**El 6.432** FM Radio-Stereo, 4 cl, 4 lab hr/wk, 4 cr — In the classroom the student will study principles of FM and stereo multiplex. The student will analyze circuits such as the ratio detector, the phase discriminator, the stereo decoder, and the S.C.A. demodulator. FM radios will be "debugged" and aligned with the aid of the multiplex signal generator.

**El 6.433** Tube and Transistor Circuits, 2 cl, 3 lab hr/wk, 4 cr — The student will study circuits including voltage and power amplifiers, non-sinusoidal oscillators, multi-vibrators, blocking oscillators and the Schmitt trigger, sinusoidal oscillators such as the Hartley, Colpitts and the Tvin-T, and special circuits such as the integrator, the differentiator, and phase-shift network. In the lab student will test integrated circuits.

**El 6.434** C.E.T. License Preparation, 4 cl/hr/wk, 4 cr — This course is essentially a C.E.T. license preparation review. Topics covered include the television signal, antennas and transmission lines, electronic components, transistors and other semi-conductor devices, basic radio and television circuit analysis, monochrome television circuits, color television circuits, synchronizing circuits, troubleshooting techniques, AGC power supplies, and waveform analysis.

**El 6.441** B&W Television II, 4 cl, 4 lab hr/wk, 4 cr — Covers AGC, sync separation, deflection oscillators, A-F-C circuits, r-f tuners, antennas and transmission lines, f-r sound and receiver servicing. The student will correct actual set problems and demonstrate alignment procedures on misaligned television receivers. The student will discuss customer-service man relationships and problems of home service calls.

**El 6.442** Color Television, 4 cl, 4 lab hr/wk, 4 cr — The student will demonstrate knowledge of compatible color TV, color mixing, receiver set-up, operating controls, color test equipment, troubleshooting black and white defects, unique to color receivers, troubleshooting the color section of the receiver. A-F-C checks and adjustments, installing picture tube, servicing techniques, and F.F. alignment.

**El 6.443** Citizen's Band Radio, 2 cl, 3 lab hr/wk, 4 cr — The student will survey Citizen's Band radio equipment and test equipment including frequency selection and control, power amplifiers and modulators, selectivity sensitivity, power sources, field servicing, shop servicing, and the business aspects of CB service.

**El 6.444** F.C.C. License Preparation, 4 cl/hr/wk, 4 cr — The student will discuss basic law (Element I), basic operating practice (Element II), basic radio-telephone law, and basic radio-telephone theory (Element III). Student will prepare for F.C.C. second class radio-telephone license. The course
Electronic Engineering Technology

Job Description — The electronic engineering technician applies scientific and engineering principles and knowledge in support of engineering or scientific activities. Career opportunities in electronics are great and varied for the qualified technician in the fields of communications, power, control, processing, and manufacturing. Employment in entry-level positions can often lead to opportunities in maintenance and repair but in circuit design, development, and construction, and in all phases of production, installation, and operation. Many corporations and companies also look to the technological experience of an individual with a degree as a supervisor and for potential promotion to other responsible administrative positions where technical understanding is an important component for effectiveness in the position.

Opportunities — Opportunities for employment through the 1970's are expected to be very good.

Potential Earnings — Beginning annual salaries for an associate degree technician in the Portland area could approximate $8,000. With experience, salaries of up to $14,000 can be expected.

PCC Program — The program provides job placement training as a technician in the electronics industry. An associate of applied science degree is conferred upon satisfactory completion of the curriculum listed below. Without the 18 credits of General Education courses, a certificate may be awarded.

Transferability — The Associate of Applied Science in Electronic Engineering Technology degree is transferable to some four year institutions of higher education. For further information contact the Electronic Engineering Technology department at Portland Community College.

Dept Crs Course Title Class/Lab Cr Hrs/Vh/ Hr
First Term
EI 6.111 Engineering Problems I 3 3
EI 6.112 Resistive Circuits 3 6 5
Mth 6.261 Technical Mathematics I* 4 3
Drf 4.103 Drafting 4 2
Wr 1.101 Communications Skills I** 3 3
Total 13 10 16

Second Term
EI 6.121 Engineering Problems I 3 3
EI 6.122 Resistive Circuits 3 6 5
EI 6.123 Transistor Analysis I 3 4 5
Mth 6.262 Technical Mathematics II* 4 3
Wr 1.102 Communication Skills II** 3 3
Total 16 10 19

Third Term
EI 6.133 Transistor Analysis II 3 4 5
EI 6.134 Power Supply Systems 3 4 5
Mth 6.266 Technical Mathematics III* 4 3
Wr 6.126 Technical Report Writing ** 3 3
Total 13 8 17-19

Fourth Term
EI 6.241 Digital Control System Logic 3 3 4
EI 6.242 Circuit Analysis I 3 3 4
EI 6.243 Communication Systems I 3 3 4
EI 6.244 Electrical Mathematics* 5 4
Total 14 9 16

Fifth Term
EI 6.251 Pulse and Digital Circuits 3 3 4
EI 6.252 Circuit Analysis II 3 3 4
EI 6.253 Communication Systems II 3 3 4
EI 6.255 Project Lab 6 2
Phy 201, General Physics 3 3 4
Total 12 18 18

Sixth Term
EI 6.261 Instrumentation and Calibration 3 3 4
EI 6.262 Advanced Devices 3 3 4
EI 6.263 Communication Systems III 3 3 4
EI 6.264 General Education 2-4
Total 14-16

Minimum credits required for degree - 102
* Transferable mathematics courses, beginning with Mth 95 or Mth 101, may be substituted for the Technical Math and Electrical Math courses. Students intending to go beyond the associate degree should also complete Mth 201, Mth 202 and, if possible, Mth 203.
** Counts toward the 18 credit hours of General Education requirements for the associate of applied science degree. English Composition Wr 111, 112, and 113 may be substituted for Wr 1.101, 1.102, and 6.266. Sp 111 may be substituted for Wr 1.102. Sci 6.370 may be substituted for Phy 201 and 204 with approval of the department chairman. Phy 221 and 224 may be substituted for Phy 201 and 204.
EI 6.111, Engineering Problems I, 3 cr/hr/ wk, 5 cr — The student will study the fundamentals of the slide rule and/or the operation of pocket calculators. Problem solving will be enhanced by the use of scientific notation, dimensional analysis, and graphing techniques. This course includes an introduction to basic programming. This course should be taken concurrently with course EI 6.112, Resistive Circuits. Prerequisite: Mth 6.261 (or take concurrently).
EI 6.112, Resistive Circuits, 3 cr/hr/ wk, 5 cr — The student will study the basic concepts of direct and alternating current with emphasis on network analysis and the concept of equivalent circuits. Areas of study include the basic resistive circuit in various circuit configurations due to the field of electronics. A practical application is provided with coordinated laboratory experiences. Prerequisite: Mth 6.261 and EI 6.111 (or take concurrently).
EI 6.121, Engineering Problems II, 3 cr/hr/ wk, 5 cr — Employing techniques learned in Engineering Problems I, the student will study the solution of reactive circuit problems. This includes the use of loga-
EI 6.121, EI 6.123.
EI 6.241, Digital Control and Logic, 3 cl, 3 lab hr/wk, 4 cr—This is an introductory course in digital integrated circuits and their application. The student will develop a working knowledge of the digital number system; use Boolean algebra as a tool in the analysis and design of digital circuits; and analyze timing, counting, decoding, triggering, and arithmetic circuits. A coordinated laboratory will require the student to build and experiment with digital circuits. Major emphasis will be given to the “7400” series, TTL logic family. Prerequisite: EI 6.123.

EI 6.242, Circuit Analysis I, 3 cl, 3 lab hr/wk, 4 cr—This course presents an introduction to the analysis of various amplifier circuits. Included are RC coupled, tuned, power, and direct coupled amplifiers. Special emphasis is given to integrated circuits such as differential and operational amplifiers. Accordion laboratory is also provided. Prerequisite: EI 6.133, EI 6.134, Mth 6.266.

EI 6.243, Communication Systems I, 3 cl, 3 lab hr/wk, 4 cr—This course begins with an introduction to communication systems, a brief survey of existing communication systems, and the principles of modulation and carrier signals. Amplitude modulation and detection theory are investigated before learning the general nature of TRF (tuned radio frequency) and heterodyne AM receivers. Finally a detailed look at the building blocks of AM transmitters and receivers is given. A coordinated laboratory is combined with the class presentation. Prerequisite: EI 6.241, EI 6.242, or concurrently.

EI 6.244, Electrical Mathematics, 5 cl, 5 hr/wk, 4 cr—The student will demonstrate a basic knowledge of calculus by ability to solve problems involving the fundamental concepts of functions, rates and limits, derivatives, integrals, maxima and minima, integrals and definite integrals. Application of this knowledge to the field of electronics will be emphasized. This is a terminating mathematics course for the electronics technician student. Prerequisite: Valent 6.266, Mth 6.102, or approval of department.

EI 6.251, Pulse and Digital Circuits, 3 cl, 3 lab hr/wk, 4 cr—This is an introductory course in discrete switching theory and nonsinusoidal waveform generation. The student will begin with a review of passive waveshaping circuits and diode and transistor switching characteristics before proceeding to the construction and analysis of multivibrator, sweep generator, timer, and comparator circuits. In a coordinated laboratory, the student will be required to construct the various circuits, verify correct circuit operation, and examine the effects of component variations on circuit performance. Prerequisite: EI 6.241, EI 6.244.

EI 6.252, Circuit Analysis II, 3 cl, 3 lab hr/wk, 4 cr—This course presents an introduction to the analysis of negative feedback amplifiers and the effects of feedback on gain, frequency response, impedance, and distortion. An analysis of LC, crystal, bridge, and phase-shift oscillators is also included. A coordinated laboratory is provided. Prerequisite: EI 6.242, EI 6.244.

EI 6.253, Communication Systems II, 3 cl, 3 lab hr/wk, 4 cr—First circuit analysis theory for the specialized circuits used in most communication systems is given. Such circuits include impedance matching circuits, coupled circuits, and filter circuits for RF and IF amplifiers, mixers, and oscillator circuits. Transmitter power amplifiers are studied next. Finally, the principle of theory of frequency phase modulation and detection are studied. A detailed look at the component parts of FM and PM receivers and transmitters is given. A coordinated laboratory is included. Prerequisite: EI 6.253.

EI 6.255, Project Laboratory, 6 lab hr/wk, 2 cr—The student will construct prototypes of circuits. The student will select or be provided with the preliminary design and will then board, test, modify, and layout the circuit. The student will then draw, print, and etch the circuit board, mount the components, and test the completed circuit. The student will also submit a report describing the circuit, its specifications, and theory of operation. Prerequisite: Fifth term standing or approval of department.

EI 6.261, Instrumentation and Calibration, 3 cl, 3 lab hr/wk, 4 cr—This course is concerned with measurements involving electrical or electronic quantities. The student will become familiar with electrical standards of measurement and their derivations. Accuracy and precision for basic instruments will be studied. Measurement systems involving transducers will be covered in addition. The student will research a specific instrument for a class report. Prerequisite: EI 6.252.

EI 6.262, Advanced Devices, 3 cl, 3 lab hr/wk, 4 cr—This course presents an analysis of state-of-the-art active devices. The material is divided between integrated circuits and discrete devices—both of the linear and nonlinear or digital variety. Representative of the linear devices are diodes, transistors, voltage regulators, audio amplifiers, RF amplifiers, digital-and-operational amplifiers. Included in the nonlinear IC devices are memories, digital-to-analog and analog-to-digital converters, and MOS. Prerequisite: EI 6.252.

EI 6.263, Communication Systems III, 3 cl, 3 lab hr/wk, 4 cr—Wave propagation of transmitted signals is investigated, followed by a study of transmission lines. Antennas are studied and an introduction to microwave communication is given. Finally, some additional communication systems are studied such as television and multiplexing systems used in telemetry and telephony. A coordinated laboratory is included. Prerequisite: EI 6.253.

Cooperative work experience may be utilized by the student to meet certain requirements of the program if approved in advance and the work is under the guidance of the department chairman.

Portland Community College offers courses in this subject area in locations throughout the community such as Appliance Repair,
opportunities—expected to be very good through the 1970's. potential earnings—qualified technician with industrial experience can expect to earn from $9,000 to $12,000 a year.

pcc program—the civil engineering technology student receives training in developing plans, estimating costs, and coordinating work on construction projects. in the second year students may specialize in either highway engineering or structural engineering technology. high-way engineering work prepares the student for employment with construction projects for highways and emphasizes the study and practice of surveying, mapping, and soil mechanics. students in structural engineering are prepared for work as technicians associated with the design of large buildings, bridges, and dams. an associate of applied science degree is conferred upon completion of the sixth term sequence.

students successfully completing the pcc civil engineering associate degree program will be accepted with junior level standing in the civil engineering program at the university of portland, providing they have taken mth 200 (calculus with analytic geometry), a chemistry sequence, and completed the necessary admission procedures at the university.

deg. hrs. wk.  cr.

first term

ce 6.101 plane surveying i. 1 6 4
ce 6.136 engineering problems i 3 3

second term

ce 6.103 plane surveying ii 1 6 4
ce 6.136 engineering problems ii 3 3
ci 6.124 soil mechanics i 2 3 3
mth 6.262 technical mathematics ii 4 3
drf 4.101 drafting i (civil engineering) 2 6 5
general education 3

total 16

third term

ce 6.508 route surveying 1 6 4
ce 6.126 soil mechanics ii 2 3 3
mth 6.266 technical mathematics iii 4 3
drf 4.105 drafting ii (civil engineering) 2 6 5
ci 6.109 applied mechanics 3 3 4

total 19

fourth term

ce 6.112 hydraulics i 2 2 3
ci 6.107 strength of materials i 3 3 4
ce 1.506 engineering economics 3 3
general education 6

total 16

fifth term

ce 6.114 hydraulics ii 2 2 3
ci 6.128 strength of materials ii 3 3 4
sci 6.370 applied physics i 3 2 4
ci 6.118 contracts and specifications 3 3
general education 3

total 17

sixth term

ce 6.300 project engineering 18 6
ce 6.305 sanitary engineering 2 3 3
drf 4.119 project drafting (civil engineering) 8 4
sci 6.371 applied physics ii 3 2 4
general education 3

total 20

minimum credits required for associate degree—109

* suggested general education courses

first term: communication skills i or english composition 111
second term: communication skills ii or english composition 112
third term: technical report writing

fourth, fifth, sixth terms: electives to meet graduation requirements

ce 6.506, engineering economics, 3 cr

— the student will study the basic laws of economics that relate to compound interest, sinking funds, capital recovery, and equipment depreciation. he/she will show ability to use the basic laws to solve economic comparison problems.

ce 6.101, plane surveying i, 1 cr

— the student will study in plane surveying, the tangent plane to a sphere, differential leveling, horizontal distances by chaining, horizontal angles, open and closed transit surveys.

in lab periods students learn to use standard surveying equipment: chain, level, and transit. emphasis is on slope staking, stake marking, stationing, and traverse work.

ce 6.103, plane surveying ii, 1 cr

— utilizes background gained in 6.101 and 6.500 (essentially a lab course). the student will work in a group of four or five; each group lays out a five-sided polygon, then does activities required to compute the area enclosed. all area and parcel computations are checked for length and location, then placed in the field. one side is designated as a road centerline, requiring the group to slope stake.

the bearing to one line is computed from star observations taken in the field.

ci 6.107, strength of materials i, 3 cr

— the student will study the stresses and strains that occur in bodies when subjected to tensile, compressive, and shearing forces, including the common theory of beams. the distribution and magnitude of stresses are examined in welded and riveted joints, thin wall cylinders, torsional members, and beams. practice problems emphasize the materials studied.

ci 6.108, materials of construction, 2 cr

— the student will study energy at rest (equilibrium), includes resolution of forces, equilibrants of forces in one plane, simple machines, and equilibrants of non-current forces. through demonstrations and experiments, student will study principles and procedures.

ci 6.112, hydraulics i, 2 cr

— the student will study fundamentals of fluid flow, bernoulli's theorem, fluid profiles, steam restrictions, distribution of energy in the stream, flow through pipe, vector representation, hydraulic similitude, and dimensional analysis.

ci 6.118, contracts and specifications, 3 cr

— the student will study the application of fluid mechanics to the design of infrastructure. study includes bernoulli's theorem, fluid profiles, steam restrictions, distribution of energy in the stream, flow through pipe, vector representation, hydraulic similitude, and dimensional analysis.

ce 6.124, soil mechanics i, 2 cr

— the student will study the physical and mechanical properties of soil: specific gravity, grain size, distribution, plasticity, shrinkage, permeability, compressibility, consolidation, and shear characteristics. he/she will analyze with
respect to stability of slopes, earth pressure, stress distribution, and settlement carrying capacity.

**CE 6.126, Soil Mechanics II, 2 cr., 3 lab hr./wk, 3 cr.**—The student will study gravitational, hydraulic, and seepage forces. He/she will learn to calculate pressure on retaining walls and bearing capacities. Student will learn to analyze stabilities of slope and solve pile driving formulae.

**CE 6.128, Strength of Materials II, 3 cr., 3 lab hr./wk, 4 cr.**—The student will study advanced theory in materials characteristics. Field trips enable him/her to observe use of different materials in actual installations.

**CE 6.135, Engineering Problems I, 3 cr./hr.**—The student will study the slide rule and learn to shift and locate decimal points by inspection; learn basic laws of exponents and equations, be able to shift decimal points and locate decimal points by scientific notation, utilizing basic laws of exponents and equations; have the ability to read and use these slide scales — C and D, A, B, K, C-inverted, D-inverted, and the trigonometric scales. The student will be introduced to right angle trigonometry, the resolution of forces into X and Y components, and vectors.

**CE 6.136, Engineering Problems II, 3 cr. hr./wk, 3 cr.**—(Continues E.P. I) The student will use common logarithmic slide rule scales and natural logarithmic scales. He/she will learn theory of common logarithmic notation and its use as a logarithmic base for effective use of slide rule in approximately half the term. Other half covers analyzing problems by units, acquainting students with the free-body diagram, and studies of the basic units of engineering as work, horsepower, force, and momentum.

**CE 6.300, Project Engineering, 18 lab hr./wk, 6 cr.**—The student will gain insight into problems encountered in the field and office during the design phase of a project that could be built. An earth-filled dam project is currently used to provide opportunities to illustrate all abilities learned in each course; any type of engineering project may be selected. Each student is involved in: critical path diagramming; contour mapping from stadia survey; volume computations by planimeter; open channel flow design for the emergency spillway and trickling bottle; analysis and classification of soil in foundation and fill; design of fill using soil information from the analysis; hydrology of the watershed area; design of the valving system utilizing a commercial valve; design of an energy dissipator; design of a structural tower over the valve; design of a road ramp from dam to tower; generating plans and specifications suitable for presentation to the office of the State Engineer and suitable for bidding purposes; and finally, staking of the project in the field and referencing it into township range system and State Plane Coordinate System.

**CE 6.305, Sanitary Engineering, 2 cr., 3 lab hr./wk, 3 cr.**—The student will study water use and sewage volume, water distribution, water treatment, and sewage treatment. He/she will learn to perform tests for physical and chemical properties of drinking water, water quality and sewage, and air pollution.

**CE 6.500, Survey Computations, 1 cr., 6 lab hr./wk, 4 cr.**—The student will learn activities required for closed transit, bearings, adjustment of measured angles, adjustment of measured distances by Compass Rule or Crandall Method, and computation of areas by planimeter. Volume calculations, Simpson’s Rule, and determination of north by star computation are also covered. Lab sessions are for problem solving.

**CE 6.508, Route Surveying, 1 cr., 6 lab hr./wk, 4 cr.**—The student will study the basic theory of highway curve design and placement using simple curves, spirals, and circular points. The lab will consist of field practice problems where the student will demonstrate ability to place located centerline from a ‘P’ line, lay student designed curves and spirals. Emphasis will be placed on noting taking, staking, and stationing. Cooperative work experience may be utilized by the student to meet certain requirements of the program if cleared in advance with the department chairman.

**Construction Technology**

**Job Description**—A variety of career opportunities are open including: salesperson, building equipment and supplies, bookkeeper and other clerical, purchasing agent, shipping and delivery person (construction), drafting and design (architectural), contractor’s expediter and assistant, engineer assistant, estimator, inspector, surveying assistant, building maintenance, construction salesperson, factory representative, and specialty contractor.

Other positions with mills, cabinet shops, and city, county, state, and federal government are available also.

**Opportunities**—Good

**Potential Earnings**—$650-800 per month starting.

**PCC Program**—Construction Technology is designed to develop technically qualified people in building construction and to prepare those with construction experience for management and executive positions. An associate of applied science degree is awarded at the satisfactory completion of the six-term sequence.

**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Class/Lab</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Drf 4.105</td>
<td>Drafting I</td>
<td>2 6 5</td>
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<tr>
<td>Mr 1.101</td>
<td>Communication</td>
<td>3 3</td>
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<tr>
<td>Mth 4.200</td>
<td>Basic Mathematics</td>
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<tr>
<td>Wr 6.126</td>
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<td>CE 6.101</td>
<td>Plane Survey I</td>
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<tr>
<td>Drf 6.122</td>
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**Fourth Term**

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<tr>
<td>BCT 3.101</td>
<td>Principles of Form Construction</td>
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<td>Exterior and Interior Finishes</td>
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<td>Safety for Construction</td>
<td>2 2</td>
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<td>BCT 3.104</td>
<td>Hand and Machine Tool Operation</td>
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<td>Construction Concepts II</td>
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<tr>
<td>CE 6.118</td>
<td>Contracts and Specifications</td>
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**Sixth Term**

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**Curriculum Being Rewritten**—This is to be used as a general guide only. Permission to enter classes must be obtained from the Engineering Technology department chairman.

**BCT 3.100, Framing Construction I, 1 cr., 4 lab hr./wk, 3 cr.**—The student will develop a basic knowledge of framing procedures and techniques.

**BCT 3.101, Principles of Form Construction I, 1 cr., 2 lab hr./wk, 2 cr.**—The student will learn layout principles of form construction, methods of form building, trade terminology, characteristics of concrete, techniques of mixing and placing concrete.

**BCT 3.102, Exterior and Interior Finishes, 2 cr./wk, 2 cr.**—The student will study the application techniques and types of exterior and interior finishes used in frame construction.

**BCT 3.103, Safety for Construction, 2 cr./wk, 2 cr.**—The student will learn and demonstrate principles of general safety, safe clothing, safe use of hand and power tools, and how to avoid occupational hazards encountered on the job. Federal and state
Job Description—The architectural draftsman is a skilled technician who interprets engineering data and directions, develops sketches and plans to guide construction and building activities, and produces detailed working drawings.

Opportunities—The possibilities are good in the local area. PCC placement service reports at the present time there are more jobs available than graduates.

Potential Earnings—$625-$700 per month starting.

PCC Program—The Architectural Drafting program builds basic drafting skills in the first year and provides additional depth of training in the second year for those who are planning to enter employment with architectural, industrial, or commercial construction firms. An associate degree is conferred upon successful completion of the six-term sequence.

Dept. Crs Course Title Class/Lab Cr
First Term
Drf 4.101 Drafting I (Architectural) 2 6 5
CE 6.108 Materials of Construction 2 2 3
Drf 4.100 Introduction to Fabrication Practices 3 3
Drf 4.104 Industrial Lettering 2 1
Drf 4.853 Blueprint Reading and Sketching 3 2
Mth 4.202 Mathematics I 5 4
Total 18

Second Term
Drf 4.105 Drafting II (Architectural) 2 6 5
Drf 4.127 Practical Descriptive Geometry 4 2
Drf 4.122 Construction Codes 2 2
Mth 4.204 Mathematics II 5 4
General Education* 6
Total 19

Third Term
Drf 4.107 Drafting III (Architectural) 2 6 5
Drf 4.127 Technical Art Illustration I 2 6 5
CE 6.135 Engineering Problems I 3 3
Mth 6.261 Technical Mathematics I General Education* 3
Total 19

Fourth Term
Drf 4.109 Architectural Drafting I 2 6 5
Drf 4.119 Project Drafting I (Architectural) 8 4
Drf 4.110 History of Architecture I 3 3
Mth 6.262 Technical Mathematics II 4 3
General Education* 3
Total 18

Fifth Term
Drf 4.111 Architectural Drafting II 2 6 5
Drf 4.121 Project Drafting II (Architectural) 8 4
Sci 6.370 Applied Physics I 3 2 4
CE 6.109 Applied Mechanics 3 3 4
General Education* 3
Total 20

Sixth Term
Drf 4.113 Architectural Drafting III 2 6 5
Drf 4.123 Project Drafting III (Architectural) 8 4
CE 6.118 Contracts and Specifications 3 3
Drf 4.110 Construction Estimating 2 2
General Education* 3
Total 17

Minimum credits required for associate degree—111

* Suggested General Education courses.

First term: Communication Skills I or English Composition 111.
Second term: Communication Skills II or English Composition 112.
Fourth, Fifth, Sixth terms: Electives to meet graduation requirements.

Job Description—The industrial draftsman is a skilled technician who interprets engineering data and directions, develops sketches and plans to guide production of machine and mechanical products, and produces detailed working drawings.

Opportunities—The possibilities are good in the local area, and the PCC placement service reports that at the present time there are more jobs available than graduates.

Potential Earnings—$625-$700 per month starting.

PCC Program—The Industrial Drafting program builds basic skills in the first year and provides additional depth of training in the second year for those who are planning to enter employment with industrial or business firms. An associate degree is conferred upon satisfactory completion of the six-term sequence.

Dept. Crs Course Title Class/Lab Cr
First Term
Drf 4.201 Industrial Drafting I 4 12 8
Drf 4.210 Materials and Manufacturing Processes 3 3
Drf 4.212 Technical Freehand Sketching 3 1
Drf 4.217 Industrial Lettering 2 1
General Education* 3
Total 16

Second Term
Drf 4.201 Industrial Drafting II 4 12 8
Drf 4.210 Materials and Manufacturing Processes 3 3
Drf 4.212 Technical Freehand Sketching 3 1
Drf 4.217 Industrial Lettering 2 1
General Education* 3
Total 16
Second Term
Drf 4.202 Industrial Drafting II 4 12 8
Drf 4.211 Materials and Manufacturing Processes II 3 3
Drf 4.218 Geometric and Positional Dimensioning and Tolerancing 3 3
General Education* 3
Total 17

Third Term
Drf 4.203 Industrial Drafting III 4 12 8
Drf 4.213 Practical Descriptive Geometry I 1 3 2
Mathematics 4
General Education* 3
Total 17

Fourth Term
Drf 4.204 Industrial Drafting IV 4 12 8
Drf 4.214 Practical Descriptive Geometry II 1 3 2
Mth 6.261 Technical Mathematics I 4 3
General Education* 3
Total 16

Fifth Term
Drf 4.205 Industrial Drafting V 4 12 8
Mth 6.262 Technical Mathematics II 4 3
Sci 6.370 Applied Physics I 3 2 4
General Education* 3
Total 18

Sixth Term
Drf 4.206 Industrial Drafting VI 4 12 8
Sci 6.371 Applied Physics II 3 2 4
Drf 4.216 Industrial Orientation 1 3 2
General Education* 3
Total 17

Minimum credits required for associate degree — 99
*Suggested General Education courses.

First Term: Communication Skills I or English Composition 111.
Second term: Communication Skills II or English Composition 112.

Fourth, Fifth, Sixth terms: Electives to meet graduation requirements.

Cooperative work experience may be utilized by the student to meet certain requirements of the program if cleared with the department chairman.

Industrial Illustration

Job Description — The industrial illustrator is a skilled technician who interprets engineering data and directions, produces sketches and designs illustrating and detailing the engineering approach, and provides clarifying technical illustration to facilitate completion and operation of the projects involved.

Opportunities — The possibilities are good in the local area. The PCC placement service reports that at the present time there are more jobs available than students. Most industrial illustrators move into that position from the drafting department in the firm. In the past there has not been a school in this area that has concentrated in industrial illustration.

Potential Earnings — $625-$700 per month starting.

PCC Program — The Industrial Illustration program builds basic drafting skills in the first year and provides additional depth of training in the second year for those who are planning to enter employment with industry, business firms, city, state, or federal agencies. An associate of applied science degree is conferred upon satisfactory completion of the six term sequence.

Suggested General Education courses.

First term: Communication Skills I or English Composition 111.
Second term: Communication Skills II or English Composition 112.

Fourth, Fifth, Sixth terms: Electives to meet graduation requirements.

Drf 4.100, Introduction to Fabrication Practices, 3 cl hr/wk, 3 cr — The student will study manufacturing methods, structures, and welding processes with emphasis on machine shop practices, the building trades, and how they relate to mechanical and architectural drafting.

Drf 4.101, Drafting I (Architectural), 2 cl, 6 lab hr/wk, 5 cr — The student will learn the basic elements of drafting through the application of drafting instruments, lettering, geometric construction, orthographic projection, sections and conventions, and isometric drawing. He/she will demonstrate knowledge by preparing pencil drawings.

Drf 4.103, Electronic Drafting, 4 lab hr/wk, 2 cr — The student will demonstrate a basic understanding of drafting techniques. Emphasis is on application of drafting instruments, templates, lettering, isometric and oblique, orthographic projection and geometric constructions, and techniques applied to drawing of chassis and schematics.

Drf 4.104, Industrial Lettering, 2 lab hr/wk, 1 cr — The student will learn serif and sans-serif lettering as applied to architectural and engineering drawings. He/she will demonstrate knowledge by preparing lettering plates. Individual criticism and demonstration stressing letter form and layout rendered in pencil and pen is given.

Drf 4.105, Drafting II (Architectural), 2 cl, 6 lab hr/wk, 5 cr — The student will advance in fundamental understanding of drafting techniques. Emphasis is placed on line work, lettering, dimensioning, symbols, and conventions used in architectural drawing.

Drf 4.107, Drafting III (Architectural), 2 cl, 6 lab hr/wk, 5 cr — The student will complete the basic knowledge and skills he/she needs to choose a major field of drafting. Emphasis is on drawings of construction details and plot plans involving contour lines and site locations.

Drf 4.108, Architectural Drafting I, 2 cl, 6 lab hr/wk, 5 cr — The student will learn methods and procedures for architectural drawings. He/she will apply knowledge for lettering, layout, and design to both con-
structural and display drawings. Student will learn basic rendering for display drawings.

**Drf 4.110, History of Architecture I, 3 cr/hr/wk, 3 cr—** The student will learn the periods of architecture and philosophy and the conditions which influenced each. Theories of design and construction will be discussed. (Two-semester sequence is recommended.)

**Drf 4.111, Architectural Drafting II, 2 cr, 6 lab/hr/wk, 5 cr—** The student will demonstrate an understanding of the steps of construction for commercial and industrial buildings. Student will apply this knowledge to working drawings. Discussions of modern construction techniques; materials and drawing requirements; inter-relationship of architectural, civil, mechanical, and electrical engineering as used in industrial construction will be conducted.

**Drf 4.113, Architectural Drafting III, 2 cr, 6 lab/hr/wk, 5 cr—** The student will demonstrate a comprehension of civil and structural drafting procedures by completing function and design of general plans. Emphasis is on stress diagrams, shop drawings, foundation or masonry plans, erection diagrams, falsework plans, sheet metal layouts, bills of materials, rivet lists, draw indexes, design considerations, and strength of joints.

**Drf 4.119, Project Drafting I, 8 lab/hr/wk, 4 cr—** The student will learn operational procedures common to industrial drafting departments and will complete drawings requiring all of the skills previously learned. Emphasis is on methods for detail layout, reading specifications of fabrication, checking and back-checking drawings, and material take-offs.

**Drf 4.121, Project Drafting II, 8 lab/hr/wk, 4 cr—** The student will gain additional knowledge and experience in industrial drafting practices. Drafting room standards of local industries will be discussed. Projects and drawings will be graded for speed and accuracy.

**Drf 4.123, Project Drafting III, 8 lab/hr/wk, 4 cr—** The student will demonstrate a comprehension of actual working conditions and drafting requirements acquired in Engineering department including: speed dimensioning, drafting room administration, coordination of specifications and design.

**Drf 4.127, Technical Art Illustration I, 2 cr, 6 lab/hr/wk, 5 cr—** The student will learn the basic elements of isometric drawing and will demonstrate understanding by preparing pictorial assembly and exploded drawings in the industrial drafting room. He/she will learn the use of isometric protractor, isometric ellipse, isometric hex templates, and inking pens.

**Drf 4.201, Industrial Drafting I, 4 cr, 12 lab/hr/wk, 8 cr—** Industrial Drafting I is a basic course designed to give the student a fundamental understanding of drawing techniques and applications. Emphasis is placed on the use of drafting instruments, lettering, geometric constructions, orthographic projection, auxiliary view drawing, sections and conventions, and pictorial drafting. The student will demonstrate knowledge by dimensioning practices (including tolerances and precision), screw threads and standard fasteners, and basic working drawings.

**Drf 4.202, Industrial Drafting II, 4 cr, 12 lab/hr/wk, 8 cr—** The student will gain additional knowledge and experience in dimensional controls of manufacturing description. He/she will learn the systems of part control from manufacturer through assembly using drawing types and drawing number sequences.

The student will demonstrate an understanding of kinematics, motion analysis including velocity and acceleration, and an understanding of cams by means of reports and drawings.

**Drf 4.203, Industrial Drafting III, 4 cr, 12 lab/hr/wk, 8 cr—** The student will learn the basic elements of isometric drawing and will demonstrate his/her understanding by preparing pictorial assembly and exploded drawings. He/she will learn to use the isometric protractor, isometric templates, and inking pens.

The student will produce pictorial drawings with the isometric angle, isometric angle, and spring templates suitable for reproduction in accordance with industrial standards.

**Drf 4.204, Industrial Drafting IV, 4 cr, 12 lab/hr/wk, 8 cr—** The student will learn basic elements of electrical, structural, and piping drafting. He/she will demonstrate understanding of electronic and electrical symbols, schematic diagrams, wiring diagrams, and power distribution diagrams; understanding of structural drawings, tolerancing and dimensional controls for structures, structural members and shapes, riveted and welded connections, and reinforcing concrete.

Piping drafting will include types of pipe, specifications of threads, flow controls, and fluid power drawings.

**Drf 4.205, Industrial Drafting V, 4 cr, 12 lab/hr/wk, 8 cr—** The student will learn concepts of mechanical design, furthering his knowledge in dimensioning tolerances and fits using geometric dimensioning. He/she will gain additional background about fasteners and permanent joints as well as design the process and materials in design.

**Drf 4.206, Industrial Drafting VI, 4 cr, 12 lab/hr/wk, 8 cr—** The student will learn some of the advanced procedures common to engineering drafting departments. He/she will demonstrate a comprehension of the principles of bearings, belts and chains, gears, cams, clutches and brakes, springs, and miscellaneous machine elements.

**Drf 4.210, Materials and Manufacturing Processes I, 3 cr/hr/wk, 3 cr—** The student will learn basic fabricating characteristics of metals as used in modern manufacturing processes. Hot working processes such as sand casting and other molding processes, forging, arc and gas welding will be analyzed so that the student may apply this information to practical layout and preparation of production industrial drawings.

**Drf 4.211, Materials and Manufacturing Processes II, 3 cr/hr/wk, 3 cr—** The student will gain knowledge necessary for the preparation of production industrial drawings as related to manufacturing plastics, powder metallurgy, cold forming and stamping, and metal cutting processes.

**Drf 4.212, Technical Freehand Sketching, 3 lab/hr/wk, 2 cr—** The student will acquire the skills needed to produce orthographic and pictorial freehand sketches. Emphasis is on one, two, three view and isometric drawing. By preparing sketches the student will gain a knowledge of blueprint reading. He/she will demonstrate skill by preparing industrial quality sketches according to drafting room standards.

**Drf 4.213, Practical Descriptive Geometry I, 1 cr, 3 lab/hr/wk, 2 cr—** The student will demonstrate his/her understanding of the theory of auxiliary views such as true length, angle, and point of intersection developed from point-line-plane through the use of revolution. An introduction to graphical solution of simple vector problems will be taught. Prerequisite: Drf 4.101.

**Drf 4.214, Practical Descriptive Geometry II, 1 cr, 3 lab/hr/wk, 2 cr—** The student will add to his background from Practical Descriptive Geometry I by applying those principles and practices in greater depth. Emphasis will be placed upon the job applications of related mechanical problems.

**Drf 4.216, Industry Orientation, 1 cr, 3 lab/hr/wk, 2 cr—** The student will prepare a portfolio and a resume, will learn how to prepare job applications, and how to present oneself and qualifications to a prospective employer.

**Drf 4.217, Industrial Lettering, 2 lab/hr/wk, 1 cr—** The student will learn serif and sans-serif lettering as applied to architectural and engineering drawings. He/she will demonstrate knowledge by preparing lettering plates. Individual criticism and demonstration stressing letter form and layout rendered in pencil and paper.

**Drf 4.218, Geometric and Positional Dimensioning and Tolerancing, 3 cr/hr/wk, 3 cr—** The student further develops skills and understandings in definition and use of a technical language which enables an engineer, designer, or draftsman to define completely and accurately the functional parameters of any set of related mechanical parts.

**Drf 4.315, Industrial Illustration I, 4 cr, 12 lab/hr/wk, 8 cr—** The student will understand three-dimensional perspective drawings as used in industry for catalogs, repair and training manuals and will improve skills in inking and shading techniques. He/she will gain the knowledge and experience needed to prepare pictorials and layouts for reproduction by multilith and other printing methods, demonstrating this knowledge by preparing completed illustrations suitable for reproduction.

**Drf 4.316, Industrial Illustration II, 4 cr, 12 lab/hr/wk, 8 cr—** The student will acquire additional skills in the production of axonometric and perspective drawings. He/she will demonstrate these skills by preparing illustrations of a quality needed for job application and will also gain an understanding of pictorial charts and graphs used for display and as a training aid for company employees and clients. The student will
apply this knowledge in the preparation of hydraulic, electrical, and piping flow charts, schematics, or circuits.

Drl 4.317, Shading and Rendering Techniques, 1 cl, 3 lab hr/wk, 2 cr—The student will acquire skills needed to produce pencil and ink renderings, shaded to show depth and roundness as needed for display drawings. He/she will use shading film, felt pens, water color wash, tempera, and color pencils applicable to his/her area of interest.

This course will be of interest to illustrators, commercial artists, architects, and draftsmen.

Drl 4.853, Blueprint Reading and Sketching, 3 lab hr/wk, 2 cr—The student will acquire the skills needed to produce orthographic and pictorial freehand sketches. Emphasis is on one, two, three view and isometric drawing. By preparing sketches the student will gain a knowledge of blueprint reading. He/she will demonstrate skill by preparing industrial quality sketches according to drafting room standards.

Drl 6.110, Construction Estimating, 2 cl hr/wk, 2 cr—The student will develop skills in estimating the amount, cost, and labor cost of materials required in various types of construction. He/she will demonstrate these skills by making estimates of material and labor quantities and costs for representative types of construction.

Drl 6.122, Construction Codes, 2 cl hr/wk, 2 cr—The student will learn the practices required in local, state, and federal construction codes.

Drl 6.127, Practical Descriptive Geometry, 4 lab hr/wk, 2 cr—The student will demonstrate his/her understanding of the theory of auxiliary view true length shape and angle and point of intersection developed from point-line-plane through the use of revolution. An introduction to graphical solution of simple vector problems will be presented. Prerequisite: Drl 4.101.

Gra 4.135, Airbrush Illustration, 4 lab hr/wk, 2 cr—Function, manipulation, and care of the airbrush. The student will learn basic and advanced techniques and procedures in photo retouching and continuous tone rendering.

Cooperative work experience may be utilized by the student to meet certain requirements of the program if cleared with the department chairman.

**Mechanical Engineering Technology**

**Job Description**—The mechanical engineering technician assists engineers in design and development work by making sketches and layouts of proposed machinery and other equipment and parts. The technician works with engineers in solving design problems and in the planning and testing of experimental machines and equipment. He/she often must develop skills in the use of test instruments, equipment, and gauges.

**Opportunities**—Employment opportunities are expected to be very good in the 1970’s.

**Potential Earnings**—Qualified technicians with experience can expect to earn $9,000 to $12,000 per year.

**PCC Program**—In the first year the student takes Engineering courses which develop problem solving abilities early in the program through an integrated curriculum including mathematics, engineering problems, mechanics, statistics, physics, English, and general time measurement, dimensional metrology, and other related disciplines. All these subjects are woven together into a practical approach to the technological task: defining and solving complex technical problems. An associate of applied science degree is conferred upon completion of the sixth term sequence.

**Dept Crs Course Title Class/Lab Cr No**

**First Term**

MET 6.101 Engineering Concepts I 7 6 9
MET 6.110 Engineering Seminar 9 3
MET 6.111 Engineering Operations 10 3
General Education* 3
Total 18

**Second Term**

MET 6.102 Engineering Concepts II 7 6 9
MET 6.107 Engineering Graphics I 10 3
General Education* 6
Total 18

**Third Term**

MET 6.103 Engineering Concepts III 7 6 9
MET 6.106 Engineering Graphics II 10 3
MET 6.112 Engineering Discipline 1 3 2
General Education* 3
Total 17

**Fourth Term**

MET 6.104 Engineering Concepts IV 8 12 12
MET 6.120 Project Design I 15 5
General Education* 3
Total 20

**Fifth Term**

MET 6.105 Engineering Concepts V 8 12 12
MET 6.121 Project Design II 15 5
General Education* 3
Total 20

**Sixth Term**

MET 6.106 Engineering Concepts VI 8 12 12
MET 6.122 Project Design III 15 5
General Education* 1
Total 18

Minimum credits required for associate degree — 111

Suggested General Education courses.

First term: Communication Skills I or English Composition 111.

Second term: Communication Skills II or English Composition 112.

**Third Term: Technical Report Writing.**

Fourth, Fifth, Sixth terms: Electives to meet graduation requirements.

MET 6.101, Engineering Concepts I, 7 cl, 6 lab hr/wk, 9 cr—The student will learn elementary algebra, trigonometry, the slide rule and related right triangle functions, and graphical solutions of functions and demonstrate understanding by solving problems in statics, including analysis of forces in truss and frame members, and three-dimensional vector resolution. Material is sequential; there are no prerequisites.

MET 6.102, Engineering Concepts II, 7 cl, 6 lab hr/wk, 9 cr—The student will learn how to locate the centroid of irregular shapes and the center of gravity of irregular solids. He/she will be able to design riveted and welded joints and to design beams, both steel and timber, after graphically solving shear and moment diagrams. Hydrostatics and flow problems will be solved, and the Newtonian physics of dynamics will be used to solve problems in velocity, acceleration, and displacement. Elementary thermodynamics of heat transfer and change of state, chemistry basics of inorganic and organic chemistry, and the physics of optics and acoustics will be used in problem solving.

MET 6.103, Engineering Concepts III, 7 cl, 6 lab hr/wk, 9 cr—The student will solve motion problems using work-energy and impulse-momentum methods; he/she will learn basic DC and AC circuits. The student will learn basic surveying techniques on a full week field trip and complete the term using the techniques of analytic geometry and differential and integral calculus to solve spacial and volumetric problems common to engineering.

MET 6.104, Engineering Concepts IV, 8 cl, 12 lab hr/wk, 12 cr—The student will learn concepts involving strength of materials in simple stress and strain, torsion, stress in beams, beam deflection, restrained, continuous, and reinforced beams, combination stresses, column, and riveted and welded connections. The student will learn fundamentals of machine design, friction and lubrication, shaft design, fasteners design, belting, chain and rope drives, brakes, clutches, power screws, gears, cams, spring design, and flywheels.

MET 6.105, Engineering Concepts V, 8 cl, 12 lab hr/wk, 12 cr—The student will learn concepts of heating and air conditioning and basic thermodynamics which will include the following: properties of air, psychrometry, psychrometric chart, air and human comfort, air conditioning load analysis, equipment selection, fundamentals of mechanical refrigeration, heat pump, air distribution and control systems, energy and work, perfect gas equations, energy equations of gases, Carnot engine cycle, basic engine cycles, compressed air cycles, internal combustion engine cycles, steady flow equations, gas properties, combustion, vapor and liquid properties, and steam cycles. The student will learn basic fluid flow process and methods of calculating pressure loss, flow, and properties of fluid.

42
MET 6.106, Engineering Concepts VI, 8 cr, 12 lab hr/wk, 12 cr — This is the course which represents the culmination of the entire six-semester curriculum in Mechanical Engineering Technology. The course content is widely diversified, since it involves all aspects of engineering technology previously studied. As a full-time student corporation member, the student will acquire knowledge of mechanism kinematics, thermodynamics, strength of materials, machine design and graphics to practical industrial problems under very real time pressure. This course provides the academic-industrial interface which has been absent so long. At the completion of the course, the student will have made sales calls on industrial clients, acted as project engineer on a particular assignment, written technical and sales reports, and contributed creatively to the solution of a real industrial problem.

MET 6.107, Engineering Graphics I, 10 lab hr/wk, 3 cr — Beginning with the basic elements of engineering drafting including freehand sketching, lettering, use of drafting equipment, orthographic projection, isometric drawings, sections and dimensioning standards, the student will prepare engineering drawings involving problem solutions. The student will gain an understanding of the development of a design concept to detail fabrication drawings. In addition to the machine design problems, the student will develop structural, hydraulic, and electrical design problems with calculations and detail drawings. He/she will be introduced to the development of development along with graphical solutions.

MET 6.108, Engineering Graphics II, 10 lab hr/wk, 3 cr — The student advances into the details of graphical solutions to design problems involving mechanisms, special linkages, force vectors, velocity acceleration, Mohr's Circle, and calculus. These solutions will lead to design projects. These projects will require engineering calculations along with a set of detail and assembly drawings. The designs will involve the determination of fasteners, bearings, size and types of weld, gears, cams, and types of power transmissions. The student will also make topographical drawings involving solution to solid and fill problems.

MET 6.110, Engineering Seminar, 9 lab hr/wk, 3 cr — Taken concurrently with MET 6.101, the student will demonstrate his/her ability to apply mathematical skills by solving basic engineering problems in statics. These include truss, frame, and space force system design, including the use of moment equations and force summations.

MET 6.111, Engineering Operations, 10 lab hr/wk, 3 cr — Taken concurrently with MET 6.101, the student will have an opportunity to practice basic algebraic and trigonometric equations in mechanical engineering technology. Emphasis is placed on drill with ample opportunity to repeat each new basic theorem. This will provide the student who may be weak in mathematics an opportunity to develop self-confidence in the use of formulae to solve linear and quadratic equations involving more than one unknown, exponents and radicals, and use of log-log scales on the slide rule.

MET 6.112, Engineering Discipline, 1 cr, 3 lab hr/wk, 2 cr — The student will study in detail the relationship of the engineering technician to his technological team members and his responsibilities to society. Ethical and professional guidelines will be established for future performance standards. Upon completion the student will be able to make the transition from the academic to the professional and industrial world. He/she will be aware of possible future paths of professional development and will know how to function on his first job.

MET 6.120, Project Design I, 15 lab hr/wk, 5 cr — The student will be a member of a Student Design Corporation registered by the State of Oregon. He/she will work in an engineering office atmosphere with social and professional encounters. The first of this three term sequence will involve the student in organizing the many required office functions: election of officers, hiring of secretaries, resolving insurance needs, and a review of company drafting standards and formats. The student will be part of a sales group to obtain contracts from companies with engineering design problems.

MET 6.121, Project Design II, 15 lab hr/wk, 5 cr — In the second of the three term sequence, the student will continue as a member of the Student Design Corporation. From the design contracts obtained from industry, the student will take on the responsibility of organizing the project to its completion. Student project coordinators will schedule the various functions and coordinate the design efforts of one or more groups to bring a satisfactory completion to the contracted project. Each completed project is submitted to the customer with a design report including calculations and a complete set of working drawings.

MET 6.122, Project Design III, 15 lab hr/wk, 5 cr — In the final term of the Student Design Corporation, the student will continue work on design projects contracted from industry. He/she will regularly make calls to various companies offering design services. During the final weeks of the term, the student must finalize all design projects and make preparations to close the corporation for the year. The student will be acquainted with corporation financial statements and will determine his share of corporate profits.

Portland Community College offers classes in this subject area in locations throughout the community such as Drafting, Food Dryer Construction, Furniture Building and Refinishing, Home Remodeling, Millwrighting, and Projects in Woodworking. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding
General studies courses are designed by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transfer-
Government Services

At Portland Community College the department of Government Services offers a variety of career programs for students wishing to enter the fields of Criminal Justice, Fire Science Technology, and Police Middle Management. In each area programs are designed to prepare students for employment and to upgrade the knowledge and skills of individuals already employed in the field.

Criminal Justice

Job Description — The individual may work in a municipal, county, or state police organization or in corrections. There are many other positions requiring law enforcement training and experiences available at all levels of government and private industry. Duties included in law enforcement today are varied, ranging from crime prevention programs to investigative and uniformed duties. More technical skills such as data processing and criminalistics are being utilized to support overall law enforcement operations.

Opportunities — Growing job opportunities in metropolitan areas.

Potential Earnings — $650 to $900 per month starting. Top salary approximately $22,500 per year.

PCC Program — There are three plans of study in Criminal Justice:

1. An associate of applied science degree program emphasizing skills required for entrance into the law enforcement profession. This program, often called a vocational program, is intended for the student who does not wish to continue his education beyond the associate degree.

2. A program with a required number of general education courses. This program, often called a "transfer program," is generally oriented toward the social sciences and at present focuses on the study and analysis of institutions of criminal justice. It is not designed as a career preparation program.

3. An associate of arts or science program identified as a "professional" or "broadened" curriculum which provides a good background in professional courses reinforced by a number of carefully selected general education offerings. This program is designed to meet the needs of both "terminal" and "transfer" students. The program provides 24 hours of professional course work, identified as administration of justice (law enforcement); related courses in sociology, psychology, technical writing, defense tactics (physical education); and general education courses in English composition, speech, physical education, personal health, science-mathematics, and social science. The student could meet additional general education requirements of the four year institution through the 18 hours of electives provided in the program.

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hrs</th>
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<tbody>
<tr>
<td>First Year</td>
<td>Introduction to Criminal Justice System</td>
<td>3</td>
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<tr>
<td>First Term</td>
<td>CJA 111</td>
<td>Introduction to Criminal Justice System</td>
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<td></td>
<td>PE 185</td>
<td>Defense Tactics I</td>
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<td></td>
<td>HE 252</td>
<td>First Aid or CPR</td>
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<td>HE 250</td>
<td>Personal Health</td>
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<td></td>
<td>Wr 1.101</td>
<td>Criminal Communications Skills I or II</td>
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<td>Wr 112</td>
<td>English Composition</td>
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<td>LE 5.220</td>
<td>Survey of Criminal Justice Problems I</td>
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Second Term

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<td>PE 185</td>
<td>Defense Tactics II</td>
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<td>Wr 1.102</td>
<td>Communication Skills I or II</td>
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<td>LE 5.221</td>
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Third Term

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<td>Third Term</td>
<td>Introduction to Criminal Justice System</td>
<td>3</td>
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<tr>
<td></td>
<td>Wr 227</td>
<td>Technical Report Writing</td>
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<td>Psy 111</td>
<td>Personality and Development</td>
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Fourth Term

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<td>Fourth Year</td>
<td>Introduction to Criminal Investigation</td>
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<td>CJA 211</td>
<td>Introduction to Law</td>
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<td>CJA 219</td>
<td>Introduction to Police Community Relations</td>
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<td>Sp 111</td>
<td>Fundamentals of Speech</td>
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Fifth Term

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<td>Fifth Term</td>
<td>Criminal Investigation II</td>
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<tr>
<td></td>
<td>PS 203</td>
<td>American Government</td>
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<td></td>
<td>HE 254</td>
<td>Narcotics and Dangerous Drugs</td>
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<td>CJA 212</td>
<td>Introduction to Criminal Law</td>
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<td>Elective*</td>
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Minimum credits required for associate degree — 90

Recommended Criminal Justice Electives

<table>
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<tr>
<th>Department</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
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<tr>
<td>FF 5.237</td>
<td>Introduction to Criminal Justice</td>
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<td>LA 5.113</td>
<td>Criminal Law</td>
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<td>LE 5.266</td>
<td>Criminal Justice Investigation</td>
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<td>LE 5.270</td>
<td>Corrections</td>
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<td>LE 5.293</td>
<td>Current Security Problems I (Internal)</td>
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<td>LE 5.295</td>
<td>Current Security Problems II</td>
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<td>LE 5.294</td>
<td>Introduction to Security Administration</td>
<td>3</td>
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<tr>
<td>LE 220</td>
<td>Introduction to Industrial Security</td>
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<tr>
<td>CJA 220</td>
<td>Introduction to Penology</td>
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<td>CJA 221</td>
<td>Introduction to Parole and Probation</td>
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<td>CJA 222</td>
<td>Introduction to Juvenile Corrections</td>
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<td>CJA 223</td>
<td>Introduction to Correctional Administration</td>
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<tr>
<td>CJA 224</td>
<td>Introduction to Corrections</td>
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<tr>
<td>CJA 225</td>
<td>Casework</td>
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</table>

Additional criminal justice courses will be developed if needed. Specific workshops and seminars are also offered to meet community needs.

Recommended General Education Electives

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
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<td>Soc 204, 205</td>
<td>General Sociology</td>
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<td>PS 203</td>
<td>American Government</td>
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<tr>
<td>PS 201, 202</td>
<td>General Psychology</td>
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<tr>
<td>Hst 101, 102</td>
<td>History of Western Civilization</td>
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<tr>
<td>Phi 201, 202</td>
<td>Philosophy, Ethics, Logic</td>
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<td>Hst 264</td>
<td>History of Black Man</td>
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<tr>
<td>Ath 207, 208</td>
<td>History of Western Civilization</td>
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If you wish to take additional electives consult your advisor or department head.

Associated Arts Degree Program

<table>
<thead>
<tr>
<th>Transfer course of study</th>
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</table>

The program outlined below is recommended for students who plan to transfer to the law enforcement program at Port-
Students transferring to the University of Portland are advised to take the associate of arts or of science transfer program. See the program coordinator for several specific institutional requirements.

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab</th>
<th>Hrs/Wk</th>
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<td>First Year</td>
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<td>First Term</td>
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<tr>
<td>CJA 111</td>
<td>Introduction to Criminal Justice</td>
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<td>Wr 111</td>
<td>English</td>
<td>Composition</td>
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<td>Soc 204</td>
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<tr>
<td>PE 185</td>
<td>Defense Tactics I</td>
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Minimum credits required for an associate degree — 93

Recommended Electives (each 3 cr/hr):

- PS 201, 202, American Government
- Hst 101, 102, History of Western Civilization
- Hst 264, History of the Black Man
- Ath 207, 208, Cultural Anthropology
- Phi 201, 202, Philosophy, Ethics, Logic
- Geo 105, 106, Introductory Geography
- LE 220, Introduction to Industrial Security
- Hst 254, Narcotics and Dangerous Drugs
- Hst 201, 202, American History
- CJA 220, Introduction to Penology
- CJA 221, Introduction to Probation and Parole
- CJA 222, Introduction to Juvenile Corrections
- CJA 223, Introduction to Correctional Process
- CJA 224, Introduction to Corrections Administration
- CJA 225, Introduction to Corrections Casework
- CJA 111, 112, 113 (T), Introduction to Criminal Justice System, 3 cr/hr/wk, 3 cr

The student will study and discuss the philosophy, history, and organization of criminal justice agencies, American and foreign; will analyze the criminal justice process from detection of crime and arrest of suspects through prosecution, adjudication, sentencing and imprisonment, or release.

The student will study and discuss the court systems including procedures from incident to final disposition; principles of constitutional, federal, state, and civil laws as they affect the court system; kinds and degrees of evidence; and rules governing admissibility of evidence in court.

Theories and current practices in correctional treatment, crime prevention, contemporary criminal justice services, and professional career opportunities will be discussed.

The student will study the philosophy and history of common law and statutory law as they relate to the court system and law office operations in the state of Oregon.

The student will study the origin, structure, and definitions of common law and statutory crimes. He/she will also study the Oregon Criminal Code and criminal court procedures.

CJA 213 (T), Introduction to Evidence, 3 cr/hr/wk, 3 cr

The student will study and discuss the nature and types of criminal evidence, rules governing admissibility, competency, and relevancy. Presentation of physical and other material evidence, direct and circumstantial evidence, hearsay rules, and exceptions will be introduced.

CJA 214 (T), Introduction to Investigation, 3 cr/hr/wk, 3 cr

The student will be introduced to modern investigative methods including the collection and preservation of physical evidence, scientific aids, sources of information, interviews, follow-up, and case presentation.

CJA 219 (T), Introduction to Police Community Relations, 3 cr/hr/wk, 3 cr

The student will discuss causes and types of prejudice, cultural and racial differences, and how these factors relate to the criminal justice system; will discuss causes of social tension and conflict, dissent and disorder. He/she will identify the role that an individual officer should achieve in maintaining public support, learn to apply human relations, disseminate public information, develop relationships with violators, and handle complaints.

LE 220 (T), Introduction to Industrial Security, 3 cr/hr/wk, 3 cr

The student will discuss physical and procedural controls of business; criminal as it applies to the retail industry; how to effect a citizen's arrest; "reasonable cause;" and special problems of modern business such as shoplifting, refunding, armed robbery, civil liability, bad checks, credit card problems, etc.

LE 5.217, Criminal Investigation II, 3 cr/hr/wk, 3 cr

The student will learn and demonstrate how to collect and preserve physical evidence. He/she will study scientific aids, modes of operation, sources of information, interviews and interrogation, follow-up, and case preparation.

LE 5.218, Criminal Investigation III, 3 cr/hr/wk, 3 cr

As an investigator the student will learn technical methods, services available through scientific and other means in identification, chemical and physical examinations, and the many varied sources of information used in law enforcement.

LE 5.220, 5.221, Survey of Criminal Justice Problems I, II, 3 cr/hr/wk, 3 cr

The student will discuss problems confronting criminal justice agencies at a state, local, and federal level with emphasis toward the future needs of criminal justice agencies.

LE 5.243, Introduction to Criminalistics, 3 cr/hr/wk, 3 cr

The student will learn the function and purposes of the police crime laboratory: laboratory techniques, capabilities, and limitations in the examination of firearms, clothing, stains, blood, poisons, narcotics, tools, impressions, fingerprints, documents, photography, and specialized laboratory photography.

LE 5.255, Burglary Investigation, 3 cr/hr/wk, 3 cr

Detailed study of burglary investigation. The student will learn the two
jobs with uniform, and a weapon. Limited to people who are physically fit and have graduated from high school or have equivalent education. Prerequisite: Employment in law enforcement agency duty and investigation.

LE 5.262, Criminal Justice Supervision, 3 cl hr/ wk, 3 cr—A broad review of industrial supervisory measures applied to the criminal justice agency. The student will discuss the problems and solutions of the P.R.I.D.E. concept, planning, reporting, improving, directing, and evaluating personal performance and those of subordinates. Through readings and discussions, the student will become aware of the communications process and principles of human relations as they relate to the role of the supervisor.

LE 5.270, Corrections Seminar, 3 cl hr/ wk, 3 cr—A seminar for the law enforcement officer involved in administration and operation of the jail. The student will examine goals, philosophies, and methods in establishing the jail administration; security measures; prisoner supervision; jail services; problems of operation. The role of the correctional officer and his relationship to the prisoner as a community representative will be discussed.

LE 5.293, Current Security Problems I, (Internal), 3 cl hr/ wk, 3 cr—The student will be presented with an in-depth study of the current problems facing retail security, as well as a study of the techniques and devices available to solve them, plus a review of current security problems facing business.

LE 5.294, Introduction to Security Administration, 3 cl hr/wk, 3 cr—The student will study the security functions in business and industry from the administrative position.

LE 5.295, Current Security Problems II, (External), 3 cl hr/ wk, 3 cr—The student will analyze and pursue an in-depth study of the current problems facing retail security, as well as a study of the techniques and devices available to solve them, plus a review of current security problems facing business.

HE 254 (T), Narcotics and Dangerous Drugs, 3 cl hr/ wk, 3 cr—The student will study history of narcotics and drug problems today. He/she will learn causes of problems, to identify drug addicts and drug abusers; define public and various types of narcotics and dangerous drugs, hallucinogenic drugs and their sources, uses, and symptoms; discuss the local, federal, and other controls, and the rehabilitation programs available.

LA 5.113, Techniques of Interview, 3 cl hr/ wk, 3 cr—The student will learn how to interview clients in relation to the type of information needed to accomplish a specific job. He/she will experience simulated interviews in a legal setting. Recommended elective.

PE 185 (T), Defense Tactics I, 3 lab hr/ wk, 1 cr—The student will learn and practice the rudiments of self-defense and attack: boxing, wrestling, hand-to-hand combat.

PE 186 (T), Defense Tactics II, 3 lab hr/ wk, 1 cr—The student will learn and practice the advanced rudiments of self-defense and attack in situations requiring use of force in criminal justice systems.

Psy 208 (T), Applied Psychology, 3 cl hr/ wk, 3 cr—The student will discuss the interrelationship between scientific psychology and applied psychology, including examples and demonstrations of the application of basic psychological principles to selected problems. Includes the application of psychological facts and research methods to human problems in business, industry, law enforcement, advertising, education, and related fields.

Wr 227 (T), Technical Report Writing, 3 cl hr/ wk, 3 cr—The student will apply report writing techniques to specific assignments.

Fire Science Technology

Job Description—Fire services is a technical and diversified career area which includes firefighting, operation of firefighting equipment, investigation, and inspection. Types of jobs include the private or fire protection technician who works in industrial safety, municipal fire departments, and supervisory personnel. Skilled persons are needed to operate complex equipment used in fighting fires on land and sea.

Opportunities—Nationally — 10,000 job opportunities will be available during the remainder of the 70's.

Potential Earnings—From $750 to $900 per month starting in metropolitan areas.

PCC Program—The following types of programs are presently available to Fire Science Technology students:

1. Associate of Applied Science degree — Fire Protection Program

A two year course of study leading to the associate of applied science degree and design for the person already employed as a firefighter or in a related career field. In cooperation with the metropolitan fire agencies, PCC is developing an intern program for students interested in becoming firefighters. Interested students should contact the department chairman prior to fall term.

2. Certificate — Fire Prevention Program

This certificate program is developed for working firefighters who wish to pursue more fire prevention courses. Pre-service students are not eligible to participate in this program until they have completed their associate degree and are hired as a full-time firefighter.

Working firefighters may combine this program with the associate degree program in that they may take the first year associate degree course work and then take their second year of the associate degree program. Interested students should contact the Fire Protection Certificate Program. The outcome of this would be that the student would be eligible to receive an Associate of Applied Science in Fire Protection degree with a Certificate in Fire Prevention.

3. Certificate — Fire Management Degree Program

This certificate program is developed for supervisory personnel from fire departments. Supervisory personnel may enroll for just the Fire Management Certificate Program as outlined, or they may combine their first year course work of the associate degree program with the certificate program and in the final stage obtain an Associate of Applied Science in Fire Protection degree with a Certificate in Fire Management.

Students who have completed the associate of applied science degree are eligible to enroll in the Fire Prevention Certificate Program. If supervisory level, may enroll in the Certificate in Fire Management program.

See Exhibit One for the program options open to students.
**Exhibit One**

<table>
<thead>
<tr>
<th>Pre-service Students (Students enrolled in intern program)</th>
<th>Fire Prevention Certificate Program</th>
<th>Fire Management Certificate Program</th>
<th>Result</th>
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<tr>
<td>1st yr.</td>
<td>2nd yr.</td>
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<td><strong>Pre-service Students</strong></td>
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* Generally accepted as lieutenant level or above. Individuals questioning this should contact their training officer for approval to enroll. A letter should be sent to the Government Services office to certify this approval.

**Minimum credits required for certificate — 45**

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**First Term**
- FP 5.277 Fire Science I
- FP 5.254 Building Construction and Operation
- PS 203 American Government
- FP 5.237 Fire Investigation (Cause Determination)
- Sp 111 Fundamentals of Speech
- Sp 100 Basic Communications

**Total Credits:** 15

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**Second Term**
- FP 5.260 Hazardous Materials I
- FP 5.272 Fixed Systems and Extinguishers
- FP 5.294 Arson Investigation
- BCT 9.100 Introduction to Building Codes
- FP 5.289 Legal Aspects of Fire Protection

**Total Credits:** 15

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**Third Term**
- FP 5.282 Fire Codes and Related Ordinances
- Wr 227 Technical Report Writing
- CJA 212 Introduction to Criminal Law (Fire)
- FP 5.295 Public Relations for Fire Service

**Total Credits:** 15

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**Minimum credits required for certificate — 45**
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*Minimum credits required for certificate—51
*Suggested electives — to be determined by department or regional needs.

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FP: Fire Service
SDP: Supervision
FP4.853: Blueprint Reading, Sketching for Firemen, 2 cl, 2 lab hr/wk, 3 cr — The student will learn and demonstrate orthographic and pictorial freehand sketching of building layouts, structural components, maps, schematics, and diagrams. He/she will learn to interpret standard symbols and drafting aids in building construction.

FP 5.237: Fire Investigation (Cause Determination), 3 cl, 2 lab hr/wk, 3 cr — The student will learn the effect of fire prevention by isolating cause of fire. He/she will study burning characteristics of combustibles; interpret clues, burn patterns leading to point of origin; identify incendiary indications, sources of ignition, and materials ignited; and how to preserve fire scene and evidence. Prerequisite: Student must be a member of a fire department or law enforcement officer.

FP 5.250: Fire Fighting Skills I, 9 lab hr/wk, 3 cr — The student will develop skills in using small tools and minor equipment. He/she will practice forcible entry; learn use of masks, salvage, overhaul, and safety practices.

FP 5.251: Fire Fighting Skills II, 9 lab hr/wk, 3 cr — The student will practice team skills used in fireground operation including hose and ladder evolutions, salvage, overhaul, rescue and fire attack. He/she will learn the effect of fire prevention by isolating cause of fire. He/she will study burning characteristics of combustibles; interpret clues, burn patterns leading to point of origin; identify incendiary indications, sources of ignition, and materials ignited; and how to preserve fire scene and evidence. Prerequisite: Student must be a member of a fire department or law enforcement officer.

FP 5.252: Fire Fighting Skills III, 1 cl, 6 lab hr/wk, 3 cr — The student will practice skills involving multi-company operations; simultaneous activities of ladder, engine, and salvage companies; managing large stream appliances; coordinating communications.

FP 5.253: Fire Apparatus and Equipment, 2 cl, 2 lab hr/wk, 3 cr — The student will become familiar with fire apparatus; principles of application; care and preventive maintenance; safe operating practices, emergency and non-emergency; National Board standards.

FP 5.254: Introduction to Fire Protection, 3 cl, 2 lab hr/wk, 3 cr — The student will study the history and development of fire service, service and security movements, role of fire service, protection and safety personnel, ancillary organizations. He/she will learn general fire hazards, their causes, and learn to apply fire protection principles.

FP 5.265: Elementary Science for Fire Fighting, 3 cl, 2 lab hr/wk, 3 cr — The student will learn the characteristics and behavior of fire, fundamentals of physical laws, and chemical reactions occurring in fire and fire suppression. He/she will analyze factors contributing to fire: cause, rate of burning; heat generation and travel; by-products of combustion; confinement, control, and extinguishment.

FP 5.267: Fire Service Hydraulics, 3 cl hr/wk, 3 cr — The student will review basic mathematics and learn hydraulic laws and formulas as applied to the fire service. He/she will apply formulae and perform calculations related to hydraulic and will study fireground water supply problems and Underwriter’s requirements for pumps and accessories.

FP 5.258, Fire Company Organization, 3 cl hr/wk, 3 cr — The student will study fire company organization and operation, company responsibilities in station, record keeping, station communications and watch, housekeeping and house privileges, tours and public relations, company organization for response to alarms, and company morale.

FP 5.260, Hazardous Materials I, 3 cl hr/wk, 3 cr — The student will review basic chemistry. He/she will identify hazardous materials by color, symbol, and marking and learn recommended safe practices for storage and handling of solids, liquids, and gases and methods for fire control of these materials.

FP 5.261, Hazardous Materials II, 3 cl hr/wk, 3 cr — The student will study electrical, exotic metal, and space age fuel fires; the affect of the atomic age on the fire service; handling of radioactive materials involved in fire; the use of monitoring equipment; and personnel safety practices.

FP 5.262: Fundamentals of Fire Prevention, 3 cl hr/wk, 3 cr — The student will learn fundamentals of fire inspections including standards, techniques of evaluation of hazards, and practical recommendations. He/she will write reports which include maps and sketches of each building inspected. He/she will conduct on-site inspections of buildings to locate hazards and recommend safe practices and improvements. Prerequisite: FP 4.853, FP 5.264.

FP 5.263, Fire Pump Construction, Operation, 3 cl, 2 lab hr/wk, 3 cr — For command officers, pump operators. The student will learn fire pump hydraulics and measurement including velocity of flow, friction loss, engine and nozzle pressure, discharge, stream range, drafting water, pumping from hydrants, and relaying by hose or tanker.

FP 5.264, Building Construction for Fire Protection, 3 cl hr/wk, 3 cr — The student will learn classification of buildings, structural features affecting fire spread, effect of fire on structural strength, fire stops and ratings of materials, fire retardants, Sanborn maps.

FP 5.267, Fire Department Communications, Alerting Systems, 3 cl hr/wk, 3 cr — The student will learn and demonstrate receiving, dispatching, and radio communication procedures; FCC regulations; municipal alarm; telephone and tone-activated alarm; recording messages; tap-out procedures; running cards.

FP 5.268, Fire Service Rescue Practices, 2 cl, 2 lab hr/wk, 3 cr — Trains fire company personnel to render emergency service in life saving and rescue work. The student will study the development and organization of a rescue company, rescue equipment, training for rescue service, practices and procedures, using mechanical device for artificial respiration, and required manual skills.

FP 5.269, Water Distribution Systems, 3 cl hr/wk, 3 cr — The student will study water-
main systems and hydrants, size, gridding, valving, distribution, residential and commercial districts; fire flow requirements; pumping stations; high pressure systems; storage tanks and cisterns; mobile supplies.

FP 5.272, Fixed Systems, Extinguishers, 3 cl/hr/wk, 3cr—The student will study portable extinguisher equipment, fire alarm and detection systems, sprinkler systems and standpipes, protection systems for special hazards, explosion release, ventilation systems, inert atmospheres, and static bonding.

FP 5.274, Fire Fighting Tactics, Strategy, 3 cl/hr/wk, 3 cr—The student will demonstrate response and size-up, fire ground tactics, analysis, and post-mortem, pre-fire survey and planning, combined operations, mutual aid, disaster planning, problems in unusual fire operations.

FP 5.275, Fire Science I, 3 cl, 2 lab hr/wk, 3cr—Practical physics for skilled fire workers. The student will learn matter measurements, mechanics, and machines and perform demonstrations and experiments in the laboratory to clarify principles and procedures studied in class.

FP 5.277, Fire Science II, 3 cl, 2 lab hr/wk, 3 cr—The student will learn physical and chemical properties of substances, chemical changes, elements, compounds, gases, chemical combinations, weights, and measurements, theory of metals, acids, bases, salts, solvents, solutions, and emulsions. He/she will study carbohydrates, electro-chemistry, electrolytes, and electrolysis in their application to chemistry to industry. Prerequisite: Mth 4200, 4202.

FP 5.281, Pump Operation, Field Streams, 2cl, 2lab hr/wk, 3cr—For instructors, command officers, pump operators. The student will study fire pump hydraulics and measurement including velocity of flow, friction loss, engine and nozzle pressure, discharge, water in mains and supply. Prerequisite: FP5.263.

FP 5.282, Fire Codes, Related Ordinances, 3cl/hr/wk, 3cr—The student will study fire code, building, exit, flammable liquid and other fire prevention codes followed by supervised building inspection field trips. Primarily for fire department inspectors.

FP 5.286, Fire Insurance Principles, Grading Schedules, 3cl/hr/wk, 3cr—The student will learn and demonstrate insurance grading schedules and their principles of application, methods of analyzing fire hazards, and the affect of fire hazards on fire insurance rates. He/she will study the National Board Grading Schedule in detail; other schedules covered briefly. The fundamentals of fire insurance rating methods, loss records, municipal grading, etc. will be examined.

FP 5.287, Training Programs, Techniques, 3cl/hr/wk, 3cr—The student will learn purposes of fire service drills and training programs. He/she will participate in development and operation of the department's training program. He/she will know facilities and equipment necessary for modern training and how to select and train the instructional staff. Psychology of learning, four-step method, lesson planning, instruction techniques, training aids, tests, workbooks, training objectives, curriculum development, conducting conferences and presentations will be studied. Prerequisite: FP5.262.

FP 5.288, Fire Reports, Records, 3 cl/hr/wk, 3cr—The student will learn fire department record systems. He/she will demonstrate principles of report writing, applications in the areas of pre-fire surveys, post fire reporting, research, and planning.

FP 5.289, Legal Aspects of Fire Protection, 3cl/hr/wk, 3cr—The student will study history and background of laws relating to the fire service; tort liability of municipalities, municipal employees, and members of the fire service; clarification of legal terminology; civil service laws and requirements; pensions and mutual aid; and fire prevention codes.

FP 5.290, Fire Officers Management Responsibilities, 3 cl/hr/wk, 3 cr—The student will become aware of the responsibilities of the various supervisory levels of the fire bureau and learn the methods to accomplish the objectives of effective supervision.

FP 5.291, Fire Officers Administrative Assignments, 3 cl/hr/wk, 3 cr—The student will become aware of the administrative assignments at the supervisory levels of the supervisory level of the fire bureau and learn how to carry out these assignments, good record keeping, and to prepare recommendations for improvements in these areas.

FP 5.293, Introduction to Firefighting Tactics and Strategy, 3 cl/hr/wk, 3cr—A study of fire ground tactics; response and size-up; protection of exposures, containment, extinguishment, pre-fire surveys, communication, and planning.

FP 5.294, Arson Investigation, 3 cl/hr/wk, 3 cr—The student will study advanced investigation procedures, preservation of evidence, laws of search and seizure, laws of arson, and motive for arson. Other subject areas studied will include interrogation, case preparation, court room procedure, death and fraud investigation, and investigation of explosion.

FP 5.295, Public Relations for Fire Service, 3cl/hr/wk, 3cr—The student will study the fundamentals of public relations as it pertains to fire service including emergency operations; general public appearances; writing news releases, articles, and speeches; and general media contact.

FP 5.296, Principles of Supervision for Firefighters, 3cl/hr/wk, 3cr—The student will develop an appreciation for fire line supervision. Future fire service supervisors will concentrate on the responsibilities and opportunities of supervision. Students will develop an understanding of human relations and will learn also how to stimulate personal development of supervisory skills.

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**Police Middle Management**

_PCC Program_—Portland Community College, in cooperation with its Criminal Justice Advisory Committee, has identified the need for supervisory and management training specifically designed for criminal justice personnel in the greater metropolitan area. This training deals with management and supervisory problems and solutions encountered in the working world. Instructors are all successful supervisors who use their firsthand knowledge and experiences to ensure that the classroom deals with relevant problems and practical solutions. This 48 credit hour certificate program in Police Middle Management is a combination of required courses (core) and recommended electives which fulfill the identified training necessary for management positions within the criminal justice system.

**Entrance Requirements**—The requirement for entry into the program is that a student must be employed by or working with a criminal justice agency or obtain approval from the program department chair. Those students who are not employed in law enforcement but who seek a career in this field, should see the Criminal Justice programs at the beginning of this module.

**Required Courses**

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Title</th>
<th>Cred.</th>
<th>Hrs/Wk</th>
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<tbody>
<tr>
<td>PMM5.100</td>
<td>Introduction to Police Organization</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>LE 5.262</td>
<td>Criminal Justice Supervision</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SDP 9.503</td>
<td>Oral Communications for Supervisors</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PMM5.101</td>
<td>Geographical Team Policing</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SDP 9.501</td>
<td>Writing for Results</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PMM5.102</td>
<td>Participative Management</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Psy 208</td>
<td>Human Behavior</td>
<td>3</td>
<td>3</td>
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<tr>
<td>PMM5.103</td>
<td>Planning and Budgeting</td>
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<td>3</td>
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<tr>
<td>SDP 9.508</td>
<td>Labor-Management Relations</td>
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<td>3</td>
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<tr>
<td>SDP 9.516</td>
<td>Pension and Employee Relations</td>
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<tr>
<td>SDP 9.544</td>
<td>Management by Objectives</td>
<td>3</td>
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<tr>
<td>PMM5.104</td>
<td>Social Psychology</td>
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<tr>
<td>PMM5.105</td>
<td>Practicum</td>
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<tr>
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Total credits required for Police Middle Management certificate—48

*Recommended Electives*

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<tr>
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<tbody>
<tr>
<td>PMM5.106</td>
<td>Organizational Behavior</td>
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<tr>
<td>PMM5.107</td>
<td>Auxiliary Police Services</td>
<td>3</td>
</tr>
<tr>
<td>PMM5.108</td>
<td>Highway Policing Administration</td>
<td>3</td>
</tr>
<tr>
<td>SDP 9.546</td>
<td>Power Reading and Thinking</td>
<td>3</td>
</tr>
<tr>
<td>SDP 9.530</td>
<td>Creative Thinking for Supervisors</td>
<td>3</td>
</tr>
<tr>
<td>SDP 9.543</td>
<td>Alcohol and Drug Abuse in Industry</td>
<td>3</td>
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<tr>
<td>SDP 9.509</td>
<td>Fire Suppression Seminar (Advanced Human Relations)</td>
<td>3</td>
</tr>
</tbody>
</table>
BA 211 Principles of Accounting 3 3
EDP 2.100 Survey of Electronic Data Processing 4 1 4
PMM 5.100, Introduction to Police Organization, 3 cl hr/wk, 3 cr—The student will analyze the structure of various police organizations. A distinction will be made between line operation and auxiliary services. Administrative functions will also be discussed. Terms such as unity of command, span of control, distribution of manpower and inter-unit relationships will be defined and examined. Organizational modifications necessary to deal with special needs such as riots, disasters, and strikes will be studied.

LE 5.262, Criminal Justice Supervision, 3 cl hr/wk, 3 cr—A course designed to present to the student a basic review of industrial supervisory techniques related to criminal justice agencies. Tasks that the criminal justice supervisor will encounter will be studied such as the P.R.I.D.E. concept, planning, resources, directing, and evaluating subordinates.

PMM 5.101, Geographical Team Policing, 3 cl hr/wk, 3 cr—The student will compare traditional methods with the concept of geographical team policing, including the flexibility in the allocation of team resources. An evaluation will be made of the traditional methods as employed by local jurisdictions in supplying police services to the community.

PMM 5.102, Participative Management, 3 cl hr/wk, 3 cr—The concept and process of involving employees in problem solving and decision making will be examined. This concept enables a group to function as a social unit in work performance. Both advantages and disadvantages of this form of management will be discussed.

PMM 5.103, Planning and Budgeting, 3 cl hr/wk, 3 cr—This course will assist the student in establishing police organizational goals and in implementing methods by which to create policies, programs, and procedures for achieving the goals.

PMM 5.104, Social Psychology, 3 cl hr/wk, 3 cr—The student will examine the psychological behavior of an individual as a member of a group; the influence of culture and society on attitudes and personality; and the dynamics of group interaction.

PMM 5.105, Practicum, 3 cl hr/wk, 3 cr—The student will evaluate a specific program currently utilized within a local law enforcement agency. A written revision of the program will be made justifying any changes suggested by the student for improvement of the program. The student will also become familiar with the process of grant application.

PMM 5.106, Organizational Behavior, 3 cl hr/wk, 3 cr—The course is designed to assist the student in developing a philosophy governing interpersonal relations with emphasis upon advanced management-labor relations. Case studies, lectures, and simulations will be utilized in developing this philosophy and working concepts.
Health Technology

Portland Community College offers a variety of training opportunities in the health technologies including Health Records, Medical Laboratory Technology, Optical Technology, and Radiologic Technology.

Due to a growing interest in all health service careers, Portland Community College receives more applications than facilities can accommodate. Also, because certain skills and aptitudes are required by the health professions, some entrance requirements and admissions procedures have been established.

Opening date for applying for admission to any health service program is January 1, except for Medical Laboratory Technology, which accepts applications any time.

Information on additional admission procedures will be forwarded to each applicant upon receipt of his or her inquiry or application. Inquiries should be directed to: Health Professions Admissions Office, Portland Community College, 12000 S.W. 49th Avenue, Portland, Oregon 97219, phone 244-6111.

Due to the unique responsibilities involved in the practice of clinical laboratory sciences in the health professions programs, each individual program reserves the right to require that a student who appears unsuited for a program be counseled into another area of study at the college.

Health Record Programs

General Information—Health Record programs include training for occupations involved in the maintenance of patient information systems in all types of health care facilities such as clinics, physicians’ offices, hospitals, nursing homes, etc.

Occupations included are: Health Record Clerk (Admitting Clerk, Medical Record Clerk, Ward Clerk, Medical Receptionist), Health Record Transcriptionist (Medical Transcriptionist), Medical Office Assistant (Medical Secretary), and Medical Record Technician.

The first two terms provide entry level training for the Health Record Clerk. From this basic training, the student can progress to a third term of training as a Medical Transcriptionist. From this three term core, the student can progress to a second year of training either as a Medical Office Assistant or as a Medical Record Technician. In addition to this career ladder core, other approaches or substitutions are available. For further information contact the Health Records program staff.

These programs are designed to correlate classroom, laboratory, and practical experience in health care facilities. Such clinical experience in local health care facilities is scheduled between 7:00 a.m. and 11:00 p.m. and may occur on any day of the week.

The four term Medical Record Technician certificate program will be offered for the 1975-76 year.

Entrance Requirements—Health Record Programs are open to both men and women. Admission policies and procedures have been designed to assist the student to determine the basic skills necessary for achievement in these programs. Success in any one of these programs requires the student to have basic skills in reading, writing, mathematics, and typing; the motivation to commit time and effort toward the completion of the program; transportation to clinical facilities; and English language and good mental and physical health.

1. High school completion or GED test scores of 40 or above in each of the five subject areas.
2. Satisfactory scores in pre-admission tests given at Portland Community College in basic mathematics, English usage, and typing.
3. Examination by a licensed physician showing a satisfactory mental and physical health status. Forms will be provided by Portland Community College.
4. Two statements of recommendation from a recent employer, teacher, counselor, etc. Forms will be provided by Portland Community College.
5. Program counseling session.

Admission Procedures—1. Contact the Health Professions Admissions Office in the Health Technology building, Sylvanian center, for specific instructions regarding admission procedures.
2. Class size is determined by the number of clinical facilities and staff available.
3. A student must maintain a “C” average in order to proceed to the next term and/or to participate in Directed Practice.
4. The ability of the student to progress from one program to the next will be assessed by the faculty advisor in conjunction with the student and will be based on the student’s performance records.

Elective Studies—The following elective subjects are recommended for the Health Record Clerk/Transcriptionist, Medical Office Assistant, and Medical Record Technician programs.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRT 101</td>
<td>History of Western Civilization</td>
<td>3 3</td>
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<tr>
<td>HRT 102</td>
<td>History of Western Civilization</td>
<td>3 3</td>
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<tr>
<td>HRT 103</td>
<td>History of Western Civilization</td>
<td>3 3</td>
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<tr>
<td>PS 150</td>
<td>American Institutions</td>
<td>3 3</td>
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<tr>
<td>Ec 115</td>
<td>Outlines of Economics</td>
<td>3 3</td>
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<tr>
<td>Psych 154</td>
<td>Psychology and Human Relations</td>
<td>3 3</td>
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<tr>
<td>Phil 202</td>
<td>Elementary Ethics</td>
<td>3 3</td>
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<tr>
<td>Sp 100</td>
<td>Basic Communications</td>
<td>3 3</td>
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<tr>
<td>Wr 111</td>
<td>English</td>
<td>3 3</td>
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<tr>
<td>Wr 112</td>
<td>Composition</td>
<td>3 3</td>
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<tr>
<td>Wr 110</td>
<td>Communications</td>
<td>3 3</td>
</tr>
<tr>
<td>Wr 115</td>
<td>Oral Communications and English</td>
<td>3 3</td>
</tr>
</tbody>
</table>

Potential Earnings—HRC - $450 - $500 per month. HRT - $500 - $550 per month.

PCC Program—HRC - Prepares students to function under supervision at entry level as an admitting clerk, ward clerk, medical receptionist, or medical record clerk. The program is two terms in length. The student receives a certificate upon successful completion of the program.

HRT - Prepares students to function as entry level medical transcribers. The program is three terms in length, with the health record clerk core program for the first year. A certificate is awarded upon successful completion of the program.

Core—The third term sequence is the basic first year core curriculum for both the Medical Office Assistant and Medical Record Technology programs.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
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</thead>
<tbody>
<tr>
<td>SS 124</td>
<td>Typing IV (Skill Building)</td>
<td>5 3</td>
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<tr>
<td>SS 215</td>
<td>Business Machines</td>
<td>5 2</td>
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<tr>
<td>HE 250</td>
<td>Personal Health Basic</td>
<td>3 3</td>
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<tr>
<td>Mth 4.200</td>
<td>Mathematics</td>
<td>5 4</td>
</tr>
<tr>
<td>EDP 2.100</td>
<td>Survey of Electronic Data Processing</td>
<td>4 1 4</td>
</tr>
</tbody>
</table>

Health Record Clerk/Transcriptionist

Job Description—The health record clerk is trained to function in the admitting office, medical record department, as a medical receptionist, or as a ward clerk on the nursing service. The health record transcriptionist works either in a secretarial pool or an individual office.

The health record clerk admits patients, maintains records of patient movement, compiles and reviews patient medical records, files and retrieves records, requisitions supplies and services, and performs related clerical duties. The health record transcriptionist transcribes medical reports dictated by physicians on word processing equipment for inclusion in the patient’s record.

Opportunities—Employment available in all types of health care facilities (hospitals, long term care facilities, and clinics).

Potential Earnings—HRC - $450 - $500 per month. HRT - $500 - $550 per month.

PCC Program—HRC - Prepares students to function under supervision at entry level as an admitting clerk, ward clerk, medical receptionist, or medical record clerk. The program is two terms in length. The student receives a certificate upon successful completion of the program.

HRT - Prepares students to function as entry level medical transcribers. The program is three terms in length, with the health record clerk core program for the first two terms. A certificate is awarded upon successful completion of the program.

Core—The third term sequence is the basic first year core curriculum for both the Medical Office Assistant and Medical Record Technology programs.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
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<tr>
<td>HRT 5.570</td>
<td>Health Information Procedures</td>
<td>5 5</td>
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<tr>
<td>HRT 5.580</td>
<td>Health Information Lab</td>
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<tr>
<td>MRT 5.483</td>
<td>Medical Terminology</td>
<td>3 3</td>
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<tr>
<td>Sci 5.930</td>
<td>Anatomy and Physiology</td>
<td>3 3</td>
</tr>
<tr>
<td>Elective*</td>
<td>3 3</td>
<td></td>
</tr>
</tbody>
</table>

Totals | 14 | 4 16 |
The graduate will receive an Associate of Science in Medical Office Assistance. PCC is applying for accreditation by the American Association of Medical Assistants so that graduates will be eligible to take the National Certifying Examination.

Tentative Curriculum Plan

| Fourth Term | MOA 5.670 Medical Office Administrative Procedures | 3 | 3 |
| MOA 5.676 Medical Office Administrative Procedures Laboratory | 4 | 2 |
| MOA 5.671 Medical Insurance Procedures | 2 | 2 |
| MRT 5.479 Legal Aspects of Medical Records | 3 | 3 |
| Bus 2.101 Introduction to Accounting | 3 | 3 |
| Electives* | 3 | 3 |
| Totals | 14 | 16 |

| Fifth Term | MOA 5.672 Medical Office Clinical Procedures | 3 | 3 |
| MOA 5.677 Medical Office Clinical Procedures Laboratory | 4 | 2 |
| MOA 5.696 Medical Office X-Ray Orientation I | 2 | 2 |
| MOA 5.685 Administrative Directed Practice | 16 | 4 |
| MOA 5.690 Directed Practice Seminar I | 2 | 1 |
| Elective* | 3 | 3 |
| Totals | 7 | 24 |

| Sixth Term | MLT 5.475 Medical Office Laboratory Orientation | 2 | 2 |
| MOA 5.686 Medical Office Clinical Directed Practice | 3 | 3 |
| MOA 5.691 Directed Practice Seminar II | 2 | 1 |
| HE 252 First Aid | 3 | 3 |
| Electives* | 5 | 5 |
| Totals | 10 | 20 |

Total credit hours required for an Associate of Applied Science in Medical Office Assisting—96

*Recommended Electives: See Health Record Programs, General Information.

Medical Record Technology

Job Description—The medical record technician reviews files, transcribes records, compiles health statistics, assists medical staff, and may supervise a medical record department. Duties include a variety of activities: reviewing medical records for completeness and accuracy; coding diagnoses and operations; retention or retrieval of medical records (or supervising file clerk) or preparing records for microfilming; compiling statistics, including the hospital’s daily census; obtaining information on reportable diseases for public health authorities and others; assisting the medical staff by preparing special studies and tabulating data from records for research; supervising the day to day operations of a medical record department; taking records to court; maintaining the flow of health information to all departments of the hospital; typing medical reports of operations, x-ray, laboratory examinations, or special treatments given to patients.

Opportunities—Employment available in all types of health care facilities (hospitals, long-term care facilities, clinics, etc.) and health agencies.

Potential Earnings—$500 - $750 per month. Varies from one area to another.

PCC Program—This program is designed to prepare students to function under the supervision of a medical record administrator, health care facility administrator, or an appropriate committee of the medical staff organization of the facility.

Certificate Program—This program is four terms in length. It is scheduled to be discontinued at the conclusion of the 1975-76 school year.

Associate of Applied Science in Medical Record Technology—This program is six terms in length. The first year consists of the successful completion of the health record clerk and medical transcription programs. Other first year options or substitues are available through discussion with the Health Records Program staff.

Graduates are eligible to take the National Certifying Examination for Medical Record Technicians administered by the American Medical Record Association.

Certificate Program

<table>
<thead>
<tr>
<th>(To be discontinued June 1976)</th>
<th>Dept Crs</th>
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<td>First Term</td>
<td>MRTS 5.470 Medical Record Science I</td>
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<td>5</td>
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<tr>
<td>MRTS 5.475 Medical Record Lab I</td>
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<td>2</td>
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<tr>
<td>Sci 5.930 Anatomy and Physiology I</td>
<td>3</td>
<td>3</td>
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<td>MRTS 4.83 Medical Terminology I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>MRTS 5.490 Medical Machine Transcription for MRTs I</td>
<td>2</td>
<td>1</td>
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<tr>
<td>MRTS 5.477 Health Data Collection</td>
<td>4</td>
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</table>

Second Term

<p>| MRTS 5.471 Medical Record Science II | 5 | 5 |
| MRTS 5.476 Medical Record Lab II    | 4 | 2 |
| Sci 5.931 Anatomy and Physiology II | 3 | 3 |
| MRTS 4.84 Medical Terminology II   | 3 | 3 |
| MRTS 5.491 Medical Machine Transcription for MRTs II | 2 | 1 |
| MRTS 5.480 Directed Practice       | 12 | 3 |</p>
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<th>Cr</th>
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<tbody>
<tr>
<td>MRT 5.479</td>
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*Recommended Electives; See Health Record Programs, General Information.

HRT 5.570, 5.571, Health Information Procedures I and II, 5/5 1/5 hr/wk, 3/3 cr — The student will study and demonstrate knowledge of the health care delivery system; the health information field; health care facility departments; admitting and bed control procedures; basic health statistics; health record content and discharge procedures; scheduling, appointments, and receptionist functions; and basic legal aspects of health records.

MOA 5.670, Medical Office Administrative Procedures Lab, 4 lab hr/wk, 2 cr — The student will practice and demonstrate the procedures listed under Medical Office Administrative Procedures and Medical Insurance Procedures.

MOA 5.677, Medical Office Clinical Procedures Lab, 4 lab hr/wk, 2 cr — The student will practice and demonstrate the procedures listed under Medical Office Clinical Procedures.

MOA 5.685, Administrative Directed Practice, 16 lab hr/wk, 4 cr — The student will be assigned for specific periods of practice in hospitals and/or physicians' offices to demonstrate medical office administrative skills.

MOA 5.686, Clinical Directed Practice — The student will be assigned for specific periods of practice in hospitals and/or physicians' offices to demonstrate medical office clinical skills.

MOA 5.690, 5.691, Directed Practice Seminar I and II, 2/2 cl hr/wk, 1/1 cr — Accompanies Directed Practice. Each session includes discussion on related topics of interest and a discussion of problems encountered during the clinical affiliation.

HRT 5.603, Introduction to Medical Science, 3 cl hr/wk, 3 cr — The student will study and demonstrate basic knowledge of the cause of diseases and their effect on individual organs and the body as a whole.

HRT 5.609, Transcription Office Procedures, 2 cl hr/wk, 2 cr — The student will study medical records, coding, and transcription procedures, and the proper use of reference materials.

HRT 5.610, Health Record Transcription Lab, 20 lab hr/wk, 5 cr — The student will practice and demonstrate proficiency in the transcription of various medical reports, including admission and discharge reports, and medical records.

MOA 5.671, Medical Insurance Procedures, 2 cl hr/wk, 2 cr — The student will study the standards of the health care facility and the various health agencies: numbering, filing, and retention systems utilized in various types of health care facilities.

MRT 5.470, Medical Record Science I, 5 cl hr/wk, 5 cr (certificate program), 3 cl hr/wk, 3 cr (two year program) — The student will study the fundamentals of office housekeeping, care of equipment, ordering supplies and equipment for office and laboratory and office management and organization.

MRT 5.471, Medical Record Science II, 3 cl hr/wk, 3 cr — The student will study and demonstrate knowledge of the coding and indexing of diseases and operations according to the International Classification of Diseases and Operations Adopted for Use in the United States. The
A student will also study and demonstrate knowledge of other classification systems commonly in use and the various registers and indices which are routinely maintained in health care facilities.

MRT 5.472, Medical Record Science III, 3 cl, 2 lab hr / wk, 4 cr — The student will study and demonstrate knowledge of the medical staff organization and the role of the medical record technician; the organization of the medical library; medical records for long term care facilities and home health agencies; requirements of accrediting and certifying agencies and their survey procedures, the medical law and the corresponding administrative regulations; and the basic principles of supervision and management of a medical record department.

MRT 5.475, 5.476, Medical Record Lab I, II, 4/4 lab hr / wk, 2/2 cr — Accompanies Medical Record Science I and II. The student will practice and demonstrate proficiency in the corresponding medical record science courses in a controlled laboratory situation.

MRT 5.477, 5.478, Health Data Collection I, II, 4/3 cl, 1/1 lab hr / wk, 4/3 cr — The student will study and demonstrate proficiency in the collection of health care facility data and reporting. The student will also study and demonstrate knowledge of the reporting of vital statistics (birth, fetal death, and death registration), data processing of medical records, medical audit procedures, data retrieval and presentation.

MRT 5.479, Legal Aspects of Medical Records, 2cl hr / wk, 2cr (certificate program), 3 cl hr / wk, 3 cr (two year program) — The student will study and demonstrate knowledge of the medical record as a legal document; confidential communications; the circumstances under which information can be released from the medical record and the procedures involved; preparation and delivery of the medical record to court and other types of legal proceedings; types of consents, instances in which consent must be obtained, and who can sign consents; and the legal, medical, and moral issues involved in abortion, sterilization, and artificial insemination procedures.

MRT 5.480, 5.481, 5.482, Medical Record Technicians Directed Practice I, II, III, 12/16/32 lab hr / wk, 3/3/5 cr (certificate program), 8/16/16 lab hr / wk, 2/4/4 cr (two year program) — During this three term sequence, students will be assigned to local health care facilities affiliated with the MRT program. Students will demonstrate their proficiency within the hours designated for admitting office procedures, file maintenance, discharge procedures, legal aspects, coding, indexing, statistics, and secretarial practice. Students will also complete a clinical study paper during this three term sequence on a subject related to medical records. Weekly seminars will be conducted in the classroom for a discussion of Directed Practice experiences.

MRT 5.483, 5.484, Medical Terminology for Medical Record Technicians I, II, 3/3 cl hr / wk, 3/3 cr — The student will study and demonstrate knowledge of medical word stems, suffixes, and prefixes and the medical terms referable to the systems of the body and associated diseases. The student will study and demonstrate proficiency in the spelling, pronunciation, and definition of medical terms, and the use of the medical dictionary and related references.

MRT 5.490, 5.491, 5.492, Medical Machine Transcription for MRTs, 2/2/16 lab hr / wk, 1/1/2 cr — The student will practice and demonstrate proficiency in the machine transcription of various medical record reports, including history and physical, consultation, radiology, operation, pathology, autopsy, and discharge summary reports in the various specialties. Emphasis will be on accuracy of both terminology and typing and also acceptable report format. Materials used in transcription will include both commercially prepared training dictation and “live” dictation provided by participating hospitals.

MRT 5.496, 5.497, 5.473, Medical Record Seminar, 1/1 cl hr / wk, 1/1 cr — Accompanies Directed Practice III. Each session includes: guest speakers on topics of interest to the class; a seminar discussion of directed practice problems; and a review of medical record science, hospital statistics, medical terminology, and anatomy and physiology in preparation for the National Accreditation Examination.

EDP 2.100, Survey of Electronic Data Processing, 4cl, 1 lab hr / wk, 4 cr — The student will study history and need of computers; demonstrate the fundamental functions of unit record equipment-control, collating, sequencing, reproducing, reporting, and operating unit record equipment; learn to express numbers in decimal, binary, octal, and hexadecimal; study and demonstrate what the computer can do and how it functions; develop basic flowcharts; write a simple program; recall job types and skills required for data processing.

Acquaints student with function of electronic data processing; need for processing data; history and development of data processing machines; overview of equipment, operating principles, philosophies, limitations, and most effective uses. Particularly suited as basic understanding of data processing for secretaries.

Sci 5.930, 5.931, Anatomy and Physiology I, II, 3 cl hr / wk, 3 cr — A two term course in which the student will learn the structure (both microscopic and macroscopic anatomy) of the several systems of the human body which will be integrated with their physiological functions. This is a fundamental course for all allied health students.

Medical Laboratory Technology

Job Description — The medical laboratory technician performs routine clinical laboratory testing procedures, which include patient contact, work with the entire team of the medical community, execution of laboratory tests such as urinalyses and blood counts. The technician uses instruments for evaluations and makes quantitative and qualitative chemical and biological analyses of body specimens under supervision of medical technologists or pathologists. The results of the examinations are used by physicians in diagnosis and treatment of disease.

Opportunities — Very good for this area. Unlimited in smaller communities over the country. This is the category of laboratory personnel which is in greatest demand.

Potential Earnings — Salary varies by location. Portland area salaries range $550 to $700 per month, depending on job description and responsibilities.

PCC Program — Trains students in the performance of routine clinical laboratory tests under the supervision of a pathologist, medical technologist, or physician. The course combines on-campus instruction in fundamental principles with clinical experiences gained through rotation in clinical laboratories.

Upon completion of the curriculum, the student receives an Associate of Applied Science in Medical Laboratory Technology degree and is eligible to take the national examination for certification given by the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists recognized by the American Medical Association.

Uniforms are required in the clinic.

Admissions — Because of limited laboratory space, clinical skills and the delicate balance of job opportunities in medical laboratory science, the Medical Laboratory Technology program has a limited enrollment. Students should not interpret acceptance into the first year of the program as automatic eligibility to enter the second year of the program. Acceptance into the second year is contingent upon performance during the first year. Each student planning to enroll in the Medical Laboratory Technology program should contact the Health Professions Admissions Office for specific eligibility requirements and an appointment for a program counseling session.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class / Lab Cr Hrs/Wk Hr</th>
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<tr>
<td>Wr 111</td>
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<tr>
<td>Ch 104</td>
<td>General Chemistry or</td>
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<td>Ch 204</td>
<td>General Chemistry</td>
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<tr>
<td>Bi 101</td>
<td>General Biology</td>
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<td>Mth 95</td>
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| Second Term | |
| Ch 105 | General Chemistry or | 4 | 5 |
| Ch 205 | General Chemistry | 4 | 3 | 5 |
| Bi 102 | General Biology | 4 |
| Mth 101 | College Algebra | 5 | 4 |
| Elective | 3 | 3 |
| Totals | 12 | 3 | 16 |
The Second Year of the program includes Math 95 for entrance into the second year of the program. Two terms of mathematics are required, including Math 95 for entrance into the second year of the program.

Electives may be any arts, humanities, or social science courses.

General Chemistry 206 is required for entrance into the second year of the program. It may be taken as the 204, 205, 206 sequence or 104, 105, 106, and 206 sequence with permission of the Chemistry Department.

Second Year

(Only those students who have been officially accepted into the second year of the MLT program may enroll in the courses listed below.)

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<tr>
<th>Dept Crs</th>
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Minimum credits required for associate degree—90-102

Note: In addition to the Clinical Lab Practice time designated in the above weekly curriculum plan, students can expect to be assigned additional time on Saturdays, Sundays, holidays, and school vacation periods.

MLT 5.421, 5.422, 5.423, Clinical Chemistry I, II, III, 2cl, 2 lab hr/wk, 2cr—The student will study and discuss:

- General concepts of instrumentation; quality control; standard, normal, and recovery solution; and calibration curves.
- Routine testing procedures involving the systems of the human body, becoming familiar with the anatomical structures involved, both macroscopic and microscopic, and their associated physiological functions.

This is a fundamental, one term course.

Optical Technology

Vision is man's major link with the physical universe. Over one-half of the 200 million people living in the United States now wear eyeglasses. Professional specialists diagnose a patient's visual skills, and if optical corrections are required, a prescription is written for appropriate lenses. The prescription may be turned over by the specialist to a laboratory for manufacture, or the patient may go through a dispensing optician.

The final prescription is made into finished eyeglasses, spectacles, or contact lenses by the optical lab technician who works in either small local shops or large optical laboratories. The proper curves are calculated and the lenses are ground and polished to meet the requirements of the prescription. The lenses are then cut and edged, and fit into the proper frame, and other specialized modifications are made as required. In many cases, special optical aids are called upon to produce unusual optical aids for severe cases of visual deficiencies.

Because eyeglasses play such an important part in the lives of a large proportion of the population, there is a continuing need for trained optical technicians who possess the required skills and techniques, and who know and understand the raw materials, machinery, and instruments necessary to create modern precision visual aids.

Job Description—In the field of ophthalmic optics and eyeglass technology there are many job opportunities requiring different levels of training and skill. Among these are laboratory optical technician, master optician, lab manager, contact lens technician, ophthalmic salesperson, professional assistant, and dispensing optician. These jobs exist in most cities in proportion to the population.

Opportunities—There is a need for skilled technicians in this field in most areas of the country, and an increasing number of new technologies and processes are being developed and put into use. There are excellent opportunities for people trained and experienced in these areas.

Potential Earnings—Earnings for the
above types of jobs range from $2.50 per
hour to upwards of $15,000 per year, de-
pending upon the type of work and the in-
dividual level of skill.

PCC Program—The one year program is
offered to give students a basic familiarity
with all phases of an optician’s work. Upon
successful completion, a certificate is a-
awarded.

Those wishing to obtain more complete and
specialized training, or to take a state board
examination as a manufacturing or dispensing op-
tician may continue for the second year.

A wide variety of electives are available
such as business operations, supervision,
marketing, data processing, and manage-
ment. Second year students will be individu-
ally counseled, and electives appropriate
to their vocational goals will be recom-

Upon successful completion of the two year
program and fulfillment of the general ed-
ucation requirements, an Associate of Ap-
plied Science in Optical Technology degree
is granted.

Persons presently employed in the indus-
try who wish to take any of the component
courses without taking the whole program
do may so provided that they have the re-
quired prerequisites and obtain approval
of the program coordinator.

Admissions—Contact Health Professions
Admissions office.

<table>
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<tr>
<th>Dept Crs Course Title</th>
<th>Class/ Lab Cr</th>
<th>Hrs/Wk Hr</th>
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<td>OT 6.204 Survey of the Vision Process</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>11</td>
<td>11/15</td>
</tr>
<tr>
<td>Minimum credits required for associate degree—93</td>
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</tbody>
</table>

*General Education Courses

As required by the Oregon State Depart-
ment of Education, the student shall take a
minimum of 15 credit hours of general edu-
cation courses as part of his associate degree.

The courses are listed. Questions con-

there are in addition to the required
courses listed. Questions concerning the ac-
ceptability of a course toward meeting
genral education requirements should be
directed to the department chairman.

Total Minimum credits required for certificate—45

Second Year Fourth Term

| OT 6.315 Contact Lens Methods I | 1 | 1 |
| OT 6.318 Ophthalmic Prescrip-

| OT 6.313 Non-Conventional Lenses | 2 | 4 |
| OT 6.302 Advanced Finishing | 1 | 2 |
| OT 6.352 Plastic Lenses | 1 | 2 |
| OT 6.304 Laboratory Practice | 3 | 1 |
| Elective* | 3 | 3 |
| Totals | 10 | 13/16 |

Fifth Term

| OT 6.316 Contact Lens Methods II | 2 | 2 |
| OT 6.319 Ophthalmic Prescription Analysis II | 3 | 4 |
| OT 6.303 Advanced Finishing | 1 | 2 |
| OT 6.305 Laboratory Practice I | 4 | 2 |
| OT 6.333 Laws, Ethics, and Economics | 1 | 1 |
| OT 6.314 Non-Conventional Lenses | 3 | 2 |
| Elective* | 3 | 3 |
| Totals | 10 | 13/16 |

Sixth Term

| OT 6.320 Ophthalmic Prescription Analysis III | 3 | 4 |
| OT 6.332 Normal and Abnormal Vision Perception | 2 | 1 |
| OT 6.326 Plastic Lenses II | 2 | 2 |
| OT 6.334 Ophthalmic Optics | 1 | 1 |
| OT 6.308 Frame Repair | 1 | 1 |
| OT 6.306 Laboratory Practice IV | 4 | 2 |
| Elective* | 3 | 3 |

Total Minimum credits required for associate degree—93

| OT 6.204 Survey of the Vision Process, 2d, 1ab/hr/wk, 2cr—The student will learn how to read ophthalmic prescriptions; select blanks; calcute curves; mark-up, grind, fine-grind, polish, and inspect glass and plastic ophthalmic prescription lenses. The student will calculate decentrations and grind and polish
prisms and other special types of lenses, and calculate thickness and compensated curves both manually and through the use of an electronic calculator.

**OT 6.223, 6.224, 6.225, Finishing I, II, III, 2/2/2 cl, 4/4/4 lab hr/wk, 4/4/4 cr** - The student will layout lenses for edging; cut and edge lenses by machine and by hand; insert lenses into plastic and metal frames; drill, notch, and mount lenses in rimless and semi-rimless frames. The student will finish the finished work and verify that it meets the prescription specifications.

**OT 6.302, 6.303, Advanced Finishing I, II, 1/1 cl, 2/2 lab hr/wk, 2/2 cr** - The student will learn techniques for finishing special prescriptions such as cataract lenses, high minus, strong cylinder, strong prism, etc., and adjustments and modifications necessary for special frames or unique prescriptions. The course will also deal with some of the lesser known and more difficult frames.

**OT 6.228, 6.304, 6.305, 6.306, Laboratory Practice I, II, III, IV, 1/10/0/0 cl, 1/3/4/4 lab hr/wk, 1/12/2/2 cr** - This is a period of supervised laboratory during which the student will be expected to make prescription eyeglasses for selected patients.

**OT 6.308, Frame Repair, 1 cl, 1 lab hr/wk, 1 cr** - The student will learn to repair metal frames by removing broken screws, flame soldering, electric soldering, plating, buffing, and finishing. The student will also learn the types of repairs which can be made on plastic frames, such as hinge repair or replacement, temple replacement, cementing, scraping, polishing, etc. Some attention will be paid to estimation of costs of repair jobs as compared to replacement with new frames.

**OT 6.313, 6.314, Non-Conventional Lenses, 1/1 cl, 2/3 lab hr/wk, 2/2 cr** - This course will cover the basic skills of making special lenses. These devices are prescribed by doctors to restore some degree of vision to persons who have severe deficiencies. Included in this category are lenses to correct astigmatism, telecentric lenses, cataract lenses, strong prisms, myodisks, bicentric lenses, and special bifocals.

**OT 6.315, 6.316, Contact Lenses I, II, 1/1 cl, 2/2 lab hr/wk, 2/2 cr** - The student will make and modify contact lenses to a doctor's prescription or his verbal orders. This will include inside and outside lathing cutting, polishing, and modifying of surfaces and edges. The course will also cover the history, nomenclature, proper specification, and quality standards of contact lenses.

**OT 6.318, 6.319, 6.320, Ophthalmic Prescription Analysis I, II, III, 3/3/3 cl, 2/2/2 lab hr/wk, 4/4/4 cr** - The student will select frames to suit the requirements of the patient. Frames will be considered from the standpoint of cost, strength, style, color and compatibility with the patient's facial proportion. The student will analyze ophthalmic prescriptions in order to correctly specify bifocal type, height and inset, pantoscopic angle, optical center height, base curve, tint, lens form and other factors important in proper vision. The student will also learn to recognize and properly control the parameters of lenses to adequately meet ophthalmic prescriptions for low vision patients and others with special vision problems.

**OT 6.325, 6.326, Plastic Lenses I, II, 1/1 cl, 2/2 lab hr/wk, 2/2 cr** - The student will learn the special techniques necessary to block, grind, polish, edge, and assemble plastic lenses into a wide variety of types of frames. The student will also learn the characteristics of optical plastics and how they compare to glass in mechanical strength, optical properties, handling, etc. The course will also deal with the special machinery, materials, and supplies which are recommended for processing plastic lenses.

**OT 6.332, Normal and Abnormal Vision and Perception, 2 cl, 1 lab hr/wk, 2 cr** - The student will survey the psychological and perceptive characteristics of normal vision and vision abnormalities which are ordinarily corrected by ophthalmic lenses. The student will learn to better understand the limitations which each vision problem imposes upon the patient and the part that proper optical correction can play in restoring the patient to optimum vision.

**OT 6.333, Laws, Ethics, and Economics, 1 cl hr/wk, 1 cr** - This study will cover federal, state, and local laws governing the ophthalmic field and the unwritten rules, conventions, and standards which are in common use for the improvement of visual optics. The student will also be introduced to the economics of the ophthalmic field.

**OT 6.334, Ophthalmic Optics, 1 cl, 2 lab hr/wk, 2 cr** - The student will learn to apply his/her knowledge of geometric optics and human vision to the study and understanding of ophthalmic lenses, their types and forms, and how to design them and properly orient them in front of the eyes to comply with the written prescription.

**Radiologic Technology**

**Job Description** - The radiologic technologist uses knowledge of anatomy, physics, geometric principles, and nursing procedures to expose and process medical x-ray films.

**Opportunities** - Technologists are in demand nationwide for jobs in hospitals, clinics, and doctors' offices.

**Potential Earnings** - Approximately $740 per month starting.

**Pacific College of Chiropractic (PCC) Program** - A 28 month program in Radiologic Technology approved by the American Medical Association and the American Registry of Radiologic Technologists and affiliated with seven Portland hospitals. Students receive an Associate of Applied Science in Radiologic Technology degree. New students begin in September and March only. Uniforms are required in the clinical area.

Applicants should contact the Health Professions Admissions office for entrance requirements and admission procedures.
XT 5.696 Radiographic Clinic VII 24 5
XT 5.609 Radiation Biology 2 2
Elective 3 3
Totals 10 24 15

Eighth Term
XT 5.697 Radiographic Clinic VIII 40 3

Ninth Term
XT 5.688 Radiographic Clinic IX 40 3

XT 5.600, Orientation and Ethics, 1 cl hr/wk, 1 cr — The student will be introduced to the health team and the profession of Radiologic Technology. He/she will discuss principles of medical ethics and medical-legal considerations.

XT 5.602, Nursing Procedures, 3 cl hr/wk, 3 cr — The student will learn nursing techniques and procedures used in the general care of the patient with emphasis on the role of the technologist in various nursing situations such as cardiac arrest, accident victim, and operating room procedures.

XT 5.609, Radiation Biology, 2 cl hr/wk, 2 cr — A survey course in radiation biology which includes a study of the effects of ionizing radiation on molecules, cells, and organ systems, and its affect on populations and genetics.

XT 5.611, Positioning I, 1 cl, 1 lab hr/wk, 1 cr — The student will learn and demonstrate basic positioning techniques employed in radiography of the respiratory system, the digestive system, the biliary tract, and the urinary tract.

Anatomy, pathology, and anomalies pertinent to radiograph of the anatomical structures listed are included in the course of study.

XT 5.612, Positioning II, 1 cl, 1 lab hr/wk, 1 cr — The student will learn and demonstrate basic positioning techniques employed in radiography of the upper and lower extremities, pelvis and hips, shoulder girdle, thoracic cage.

XT 5.613, Positioning III, 1 cl, 1 lab hr/wk, 1 cr — The student will learn and demonstrate basic positioning techniques employed in radiography of the spinal column, skull, facial bones, sinuses.

XT 5.614, Positioning IV, 1 cl, 2 lab hr/wk, 2 cr — With the use of phantoms the student will produce radiographs to demonstrate advanced positioning techniques on the upper and lower extremities, thoracic cage, shoulder girdle, hips, and spinal column.

XT 5.615, Positioning V, 1 cl, 2 lab hr/wk, 2 cr — With the use of phantoms the student will produce radiographs to demonstrate advanced positioning techniques on the skull, inner ear, mastoids.

XT 5.621, Film and Processing, 2 cl, 1 lab hr/wk, 2 cr — The student will learn composition of film, types of film used in radiography, and will demonstrate film handling, manual, and automatic film processing.

XT 5.622, Principles of Exposure I, 2 cl, 1 lab hr/wk, 2 cr — The student will demonstrate knowledge of the primary factor affecting radiographic quality, MA, time, KVP, and distance are related to radiographic density, contrast, definition, and distortion.

XT 5.623, Principles of Exposure II, 2 cl, 1 lab hr/wk, 2 cr — The student will study and demonstrate secondary factors affecting radiographic quality: grids, cones, collimators, focal spot size, film speed, and screen speed are related to film quality and conversion factors.

XT 5.631, Radiation Protection, 2 cl/hr/wk, 2 cr — The student will study the protection of patients and personnel from the hazards of overexposure to all kinds of ionizing radiations. Interaction of radiation with matter, genetic and somatic effects of radiation, and shielding devices are covered in considerable detail.

XT 5.632, Radiation Therapy and Nuclear Medicine, 3 cl hr/wk, 3 cr — The student will be introduced to the specialized fields of nuclear medicine and radiation therapy. Physical principles, modalities of radiation therapy, and the application of radioisotopes in therapeutic and diagnostic studies are included in this course of study.

XT 5.661, Advanced Radiographic Procedures I, 3 cl hr/wk, 3 cr — The student will learn practical aspects of radiographic procedures using contrast media and/or specialized equipment with the exception of cardiovascular and neurological studies.

XT 5.662, Special Procedures, 3 cl hr/wk, 3 cr — The student will learn techniques and instrumentation for neuroradiographic and cardiovascular studies.

XT 5.671, Pediatric Radiography, 1 cl hr/wk, 1 cr — The student will learn special techniques in handling children during routine radiographic procedures that will enable him/her to produce diagnostic radiographs with a minimum of radiation exposure to the child.

XT 5.672, Survey of Disease, 2 cl hr/wk, 2 cr — The student will study and discuss medical and surgical diseases. Acquaints the student with physiological changes due to injury and disease and the application of this knowledge to the practice of radiology.

XT 5.673, Departmental Management, 1 cl hr/wk, 1 cr — The course explores career opportunities in radiologic technology. The structure of the health care industries is presented and a consideration of basic problems and processes of x-ray department management is given.

XT 5.690, Radiographic Clinic I, II, III, 16 hr/wk, 3 cr; XT 5.691, Radiographic Clinic II, 16 hr/wk, 3 cr; XT 5.692, Radiographic Clinic III, 16 hr/wk, 3 cr; XT 5.693, Radiographic Clinic IV, 40 hr/wk, 3 cr; XT 5.694, Radiographic Clinic V, VI, VII, 24 hr/wk, 5 cr; XT 5.695, Radiographic Clinic VIII, IX, 40 hr/wk, 3 cr

This course provides practical work experience in hospital radiologic departments under the supervision of radiologists, technologists, instructors. The student will be instructed in operation of equipment and handling of patients. Practice is under close supervision, then general supervision, finally unaided. Student does no radiographic examinations until qualified for safety to patient and personnel. Course continues through 28 months of program and provides approximately 3000 hours in radiology at one of the participating hospitals. Credits are granted upon completion of the entire program. Prerequisite: For each term, satisfactory completion of previous term.

XT 9.401, 9.402, 9.403, Physics for X-Ray Technologists, 2 cl, 2 lab hr/wk, 3 cr — The student will study and demonstrate his/her knowledge of the elements of physics and specifically the physics of electricity and radiation as these apply to medical radiography. Some topics included are DC circuits, AC circuits, transformers and other electromagnetic devices, valve tubes and solid state rectifiers, radiographic tubes, the complete x-ray circuit, the production and nature of X-radiation, the interaction of X-rays and matter, and radioactivity in medicine.

MRT 5.600, Medical Terminology, 2 cl/hr/wk, 2 cr — The student will learn basic medical language including Greek and Latin roots, prefixes, suffixes, word formation, definition, and spelling.

Sci 5.932, Osteology, 3 cl hr/wk, 3 cr — The student will study the anatomy and physiology of the entire human skeletal system including joints, based on a set of "behavioral objectives." This specialized course for students in Radiologic Technology program is presented in conjunction with Anatomy and Physiology I and II.

Portland Community College offers classes in this subject area in locations throughout the community such as Electrocardiography, Patient Aid, and Personnel Safety. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding
General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
Home Economics

The Home Economics programs at Portland Community College are designed to equip students with the skills and knowledge needed to find employment, to create a more satisfying family life, to become efficient consumers, and to aid in understanding the interrelationships between individuals. Five associate degree programs—college transfer, Dietetic Technician, Home Economics-Art, Home Economics-Business, and Early Childhood Education—are offered in addition to a certificate in Early Childhood Education. The Home Economics department provides specialty courses for other PCC programs.

The consumer education program is designed to help individuals and families increase their purchasing power through presentation of information on quality and costs of products and services. It assists individuals in improving their home environment and quality of family life. A specially-equipped mobile consumer education/home economics classroom takes these services to all areas of the college district free of charge on a non-credit basis.

Dietetic Technician

Job Description—The dietetic technician, operating under the direct supervision of the dietitian, assists in a nutrition care program. The dietetic technician assists in assessment of the patient situation by securing and evaluating a diet history and in communicating the patient's questions, comments, and concerns to the registered dietitian. The dietetic technician assists in the implementation of the care plan developed and supervised by the registered dietitian through participation in team teaching and using skills in such activities as:

- helping the patient select a menu while in the hospital, planning a diet for home use, purchasing foods for specific nutritional needs and within a budget, and preparing foods which are a part of the nutritional care.
- assisting in the teaching, formula preparation, food purchasing, and food preparation such as low sodium cooking.
- participating in "follow-up" care through home visits as indicated by individual care facility administration.
- maintaining product files which provide information on new products, ingredient analysis, costs, preparation, etc.
- maintaining a variety of resource files which provide information on agencies, support systems, teaching aids, etc.

Opportunities—It is estimated that by 1980, the need for dietetic assistants and technicians will exceed 20,000. In Oregon there is an ever-growing number of residential homes for the elderly, hospital day care centers, extended care facilities, long-term chronically ill rehabilitation hospitals, etc. The registered dietitian in charge of the nutrition needs in these facilities will be seeking more of the expertise of the dietetic technician.

Potential Earnings—Wage $3.50 to $5.50 per hour depending upon experience, ability, and the care facility.

PCC Program—An associate degree program which prepares students for entry-level positions.

Admissions—Personal counseling session with department chairman required.

Dept Crs Course Title Class/Lab Cr No Hrs/Wk Hr
First Year
Core
HEc 7.315 Orientation for Dietetic Technicians 2 2 3
HEc 7.317 Basic Food Principles I 2 2 4
HEc 7.318 Basic Food Principles II 2 4 4
HEc 7.319 Basic Food Principles III 2 4 4
FN 225 Nutrition 4 4 4
HEc 7.322 Nutrition and Life Cycle 4 4 4
HEc 7.323 Therapeutic Nutrition 3 2 4
HEc 7.325 Dietetic Field Experience I 1 4 3
HEc 7.326 Dietetic Field Experience II 1 4 3
General Courses
Sci 5.930 Anatomy I 3 3
Sci 5.931 Anatomy II 3 3
Wr 1.101 Communication Skills 3 3
Mth 4.200 Basic Mathematics 4 4 4
It is recommended that the student have some on-the-job experience in a phase of nutrition care during summer between first and second year.

Second Year
Core Courses
HEc 7.327 Dietetic Field Experience III 1 4 3
HEc 7.328 Dietetic Field Experience IV 1 4 3
HEc 7.329 Dietetic Field Experience V 1 4 3
HEc 7.331 Dietetic Technician and Management I 3 3
HEc 7.332 Dietetic Technician and Management II 3 3
HEc 7.333 Dietetic Technician and Management III 3 3
HEc 7.334 Purchasing and Storage 3 3
HEc 7.335 Diet Kitchen Design and Equipment 3 3
HEc 7.336 Organization and Dietetic Technician 3 3
HEc 7.337 Sanitary Procedures and Dietetic Technician 3 3
HEc 7.339 Dietetic Seminar 3 3
General Courses
Wr 1.102 Communication Skills II 3 3
Psy 1.546 Psychology and Human Relations 3 3
Electives 7
Minimum credits required for associate degree—92

HEc 7.315, Orientation for Dietetic Technicians, 2 cr, 2 lab hr/wk, 4 cr—This in basic foods course, the student will consider all factors in menu preparation with an emphasis on fundamental principles of quality food preparation of nutritionally adequate meals.

HEc 7.317, Basic Food Principles I, 2 cr, 4 lab/hr/wk, 4 cr—In this basic foods course, the student will consider all factors in menu preparation with an emphasis on fundamental principles of quality food preparation of nutritionally adequate meals.

HEc 7.318, Basic Food Principles II, 2 cr, 4 lab/hr/wk, 4 cr—An extension of Basic Food Principles I, the student will study basic cooking procedures, safety and sanitation factors, and the selection of equipment involved in food preparation with particular stress on high quality in relation to preparation techniques.

HEc 7.319, Basic Food Principles III, 2 cr, 4 lab/hr/wk, 4 cr—The student will study the science of foods and food preparation. The knowledge of the functional properties of food and their interrelationships during preparation will enable the student to relate this to the success and/or failure of food products, or to the development of new products. The course will provide techniques for establishing and judging quality standards.

HEc 7.322, Nutrition and the Life Cycle, 4 cr—The student will review the science of foods and food preparation. The knowledge of the functional properties of food and their interrelationships during preparation will enable the student to relate this to the success and/or failure of food products, or to the development of new products. The course will provide techniques for establishing and judging quality standards.

HEc 7.323, Therapeutic Nutrition, 3 cr, 2 lab hr/wk, 4 cr—This course includes practical information about therapeutic nutrition and characteristics of the most commonly used modified diets. Laboratory experience in menu planning and diet modification will be provided. The student will become familiar with the latest concept of nutritional care and understand the dietetic technician's role.

HEc 7.325, 7.326, 7.327, 7.328, 7.329, Dietetic Field Experience I, II, III, IV, V, 1 cr, 4 lab hr/wk, 3 cr—The student will become acquainted with the variety of kitchen facilities available in the area and understand their differences. He/she will become more aware of the responsibilities of other workers and gain a better understanding of the opportunities and requirements involved with the function of the dietary service. Seminar will give the student an opportunity to share experiences, to question methods, and to review principles.
HEC 7.331, Dietetic Technician and Management I, 3 cr/hr/wk, 3 cr — This course will emphasize the importance of understanding, relating to, and having empathy with people, and in so doing, work effectively with them. Techniques of human relationships, communication, and interpersonal relationships will be stressed.

HEC 7.332, Dietetic Technician and Management II, 3 cr/hr/wk, 3 cr — This course is intended to give the dietetic technician basic concepts in training employees including advantages of a planned training program, teaching or training methods, training procedures as well as factors to consider in training programs for this field.

HEC 7.333, Dietetic Technician and Management III, 3 cr/hr/wk, 3 cr — Financial management as a tool to success will be stressed. Cost analysis and budgets, record keeping (inventories, census, etc.), and the combining of records to give essential information will be included.

HEC 7.334, Purchasing and Storage in Health Care Facility, 3 cr/hr/wk, 3 cr — This course will provide the student with the proper purchasing procedures and methods used in health care facilities; with standards established to indicate quality and protect the consumer in purchasing; with ethical standards, buying practices, and basic factors such as policies, marketing systems, needs, and selection. Selection of food with written specifications will be emphasized.

HEC 7.335, Diet Kitchen Design and Equipment, 3 cr/hr/wk, 3 cr — Work methods, space and equipment requirements, area and equipment arrangements which provide an efficient operation for nutritional care in the health care facility will be explored.

HEC 7.336, Organization and the Dietetic Technician, 3 cr/hr/wk, 3 cr — This course will give the student a basic knowledge of the organizational structure of various group care institutions and management of the diet facility. Policies and procedures in respect to each function of the department will be studied.

HEC 7.337, Sanitary Procedures and the Dietetic Technician, 3 cr/hr/wk, 3 cr — Through film, laboratory experiences, and resource personnel, the student will learn proper food handling practices. The importance of sanitary practices as related to those who consume the food he/she has handled will be emphasized. Personal appearance and cleanliness will be stressed.

HEC 7.339, Dietetic Seminar, 3 cr/hr/wk, 3 cr — This seminar provides an opportunity for students to summarize the previous course work in nutrition care, the competencies needed for them to function alone in a small operation under the guidance of a registered dietitian, and to discuss solutions to problems that may arise on the job.

**Certificate Program**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk/Hr</th>
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<tr>
<td>First Term</td>
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<tr>
<td>HEC 7.402</td>
<td>Introduction to Early Childhood Education</td>
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<tr>
<td>HEC 7.404</td>
<td>Infancy</td>
<td>3 3</td>
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<td>HEC 7.500</td>
<td>Personal Development</td>
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<tr>
<td>Wr 1.101</td>
<td>Communication Skills I</td>
<td>3 3</td>
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<td>Art 195</td>
<td>Basic Design</td>
<td>4 2</td>
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<tr>
<td>Sp 100</td>
<td>Basic Speech</td>
<td>3 3</td>
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<tr>
<td>Totals</td>
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| Second Term |
| HEC 7.410 | Observing, Guiding Behavior of Young Children I | 2 6 5 |
| Wr 1.102 | Communication Skills II | 3 3 |
| Art 196 | Basic Design | 4 2 |
| Psy 1.546 | Psychology and Human Relations | 3 3 |
| HE 252 | First Aid | 3 3 |
| Totals | 12 9 16 |

| Third Term |
| HEC 7.411 | Observing, Guiding Behavior of Young Children II | 2 8 5 |
| HEC 7.419 | Early Childhood Education Curriculum I | 3 3 |
| HEC 7.340 | Child Nutrition and Health | 3 3 |
| HEC 7.750 | Home and Family Management | 3 3 |
| Totals | 11 8 14 |

**Associate of Applied Science Degree Program**

A student who completes the certificate program may receive second year standing toward the associate of applied science degree; FL 225 must be added during the second year. The flexible scheduling of the associate degree program allows the student to acquire a maximum number of transferable general education courses or more specialty work in early childhood education depending on the student's need.

**Job Description** — The aide or assistant teacher participates in active work and play with preschool children; teaches simple songs, games, dances; supervises play and physical needs of small children; plans daily activities; keeps records of students progress; confers with parents.

**Opportunities** — Good.

**PCC Program** — PCC offers a one-year certificate program which prepares the student to be an aide in a day care center. The two-year associate degree program prepares the student to be an assistant teacher (or comparable position) in a day care center, preschool, or other child care setting. Specialty courses are offered each term for persons already employed in child care settings who wish to upgrade their skills and increase their knowledge in working with young children.

**Admissions** — Personal counseling session with department chairman is required.

**Early Childhood Education**

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<th>Class/Lab Cr</th>
<th>Hrs/Wk/Hr</th>
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<td>HEC 7.402</td>
<td>Introduction to Early Childhood Education</td>
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<td>FL 225</td>
<td>Child Development</td>
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<tr>
<td>HEC 7.340</td>
<td>Child Nutrition and Health</td>
<td>3 3</td>
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<tr>
<td>HEC 7.419</td>
<td>Early Childhood Education Curriculum I</td>
<td>3 3</td>
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<tr>
<td>HEC 7.750</td>
<td>Home and Family Management</td>
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<tr>
<td>Totals</td>
<td>21 19 28</td>
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**General Background Courses**

| Wr 111 | English Composition or Literature | 3 3 |
| Art 195, 196 | 4 12 |
| PE 180 or 190 | Physical Education (three terms) | 9 3 |
| Totals | 16-24 8-12 |

**Second Year Early Childhood Education Courses**

| HEC 7.420 | Early Childhood Education Curriculum II | 3 3 |
| HEC 7.421 | Early Childhood Education Curriculum III | 3 3 |
| HEC 7.440 | Directed Participation I | 2 9 5 |
| HEC 7.441 | Directed Participation II | 2 12 6 |
| HEC 7.442 | Directed Participation III | 1 10 9 |
| HE 252 | First Aid | 3 3 |
| Totals | 14 41 29 |

**General Background Courses**

| Wr 112 | English Composition or Literature | 3 3 |
| PE 180 or 190 | Physical Education (two terms) | 6 2 |
| HE 250 | Personal Health | 3 3 |
| Psy 1.546 | Psychology and Human Relations | 3 3 |
| Psy 201, 202, 203 | General Psychology | 3-9 3-9 |
| Totals | 15-21 11-17 |
A minimum of 18 credits of general education courses must be taken to complete the 90 credits required for an associate of applied science degree.

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<td>Marriage</td>
<td>FL 222</td>
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<td>Family Living</td>
<td>FL 223</td>
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<tr>
<td>Personal Development</td>
<td>HEc 7.500</td>
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**Suggested Early Childhood Education Electives**

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<th>Dept Crs</th>
<th>Class/Lab Cr</th>
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</thead>
<tbody>
<tr>
<td>Parent-Community Relations</td>
<td>HEc 7.280</td>
<td>3</td>
</tr>
<tr>
<td>Philosophy of Parent Education</td>
<td>HEc 7.285</td>
<td>3</td>
</tr>
<tr>
<td>Disadvantaged Child in Preschool</td>
<td>HEc 7.430</td>
<td>3</td>
</tr>
<tr>
<td>Language and Literature for Preschool</td>
<td>HEc 7.451</td>
<td>3</td>
</tr>
<tr>
<td>Science for Preschool</td>
<td>HEc 7.452</td>
<td>3</td>
</tr>
<tr>
<td>Music for Preschool</td>
<td>HEc 7.453</td>
<td>3</td>
</tr>
<tr>
<td>Administration of Child Care Center</td>
<td>HEc 7.480</td>
<td>3</td>
</tr>
<tr>
<td>Parent-Community Relations, 3hr/wk, 3cr — The student will learn tools for establishing and maintaining relationships between the preschool, the parents, and the community and will become involved with using community resources, scheduling conferences and meetings.</td>
<td>HEc 7.280</td>
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</tr>
<tr>
<td>Philosophy of Parent Education (Parent Participation), 3cl hr/wk, 3cr — This course provides opportunities for parents to learn more about child growth and development through observations and participation and about ways for guiding children’s growth. Parents, teachers, and children learn together through seminars to clarify the philosophy and goals of the daycare center.</td>
<td>HEc 7.285</td>
<td>3</td>
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<tr>
<td>Child Nutrition and Health, 3cl hr/wk, 3 cr — The student will recognize and recall factors which influence food intake and nutrient intake, and will record the nutrients and their function in the normal diet.</td>
<td>HEc 7.340</td>
<td>3</td>
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<tr>
<td>Directed Participation with Young Children I, II and III, 2/2/2cl, 9/9/12 lab hr/wk, 5/6/9 cr — The student will assist in planning the daily schedule and room arrangement and in evaluating the children’s achievement. She will help in daily record keeping and will use information obtained to make both short-range and long-range plans for children.</td>
<td>HEc 7.440</td>
<td>3</td>
</tr>
<tr>
<td>Language and Literature for Preschool, 3 cl/hr/wk, 3 cr — The student will become familiar with all types of literature for young children and will learn to select, evaluate, and present books and other types of children’s literature. The student will practice reading, telling, and dramatizing stories and poems.</td>
<td>HEc 7.451</td>
<td>3</td>
</tr>
<tr>
<td>Science for Preschool, 3 cl/hr/wk, 3 cr — The student will be able to identify and maintain optimum class environment which will promote the child significant science learnings; provide materials and experiences which will develop individual and group responsibility; provide materials and experiences which will develop skills in making observations, classifying, measuring, hypothesizing, inferring, forming conclusions, predicting and evaluating one’s own learnings; examine science goals in the perspective of their impact on preschool children.</td>
<td>HEc 7.452</td>
<td>3</td>
</tr>
<tr>
<td>Music for Preschool, 3cl hr/wk, 3 cr — The student will learn practical strategies for guiding preschool music experiences to explore sound sources, songs, and opportunities for moving to music. Depending upon class members’ expressed needs, techniques of playing and songwriting with guitar, piano, and ukulele, and techniques of reading simple song notations will be taught.</td>
<td>HEc 7.453</td>
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**Suggested General Education Electives**

<table>
<thead>
<tr>
<th>Course Title</th>
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<th>Class/Lab Cr</th>
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<tr>
<td>First Aid</td>
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<td>3</td>
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<tr>
<td>Clothing and Man</td>
<td>CT 211</td>
<td>3</td>
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<tr>
<td>Basic Design</td>
<td>Art 195</td>
<td>3</td>
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<tr>
<td>Survey of Visual Arts</td>
<td>Art 201</td>
<td>3</td>
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<tr>
<td>English Composition</td>
<td>Wr 111</td>
<td>3</td>
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<tr>
<td>Communication Skills</td>
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</table>

**Course Work**

A non-transferable, associate degree program developed for the student who desires a background in home living with an emphasis on:

**Home Economics - Art**

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<tr>
<th>Course Title</th>
<th>Dept Crs</th>
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<tr>
<td>Orientation to Home Economics</td>
<td>HEc 101</td>
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<td>Clothing and Man</td>
<td>CT 211</td>
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<td>Basic Design</td>
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<td>Survey of Visual Arts</td>
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<td>English Composition</td>
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**First Year**

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<td>Orientation to Home Economics</td>
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**Total**

18 15

**Second Term**

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<td>Personal Development</td>
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<td>Art 196</td>
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3 2 4 3 2
employed in almost every office where re-

cords are kept, correspondence is handled, and routine tasks are performed.

Potential Earnings — From $75 and $100 a week starting.

PCC Program — A two-year, non-transfer-able associate degree program designed for students who wish to develop clerical skills for employment as a general office clerk. Secretarial science courses are taken in addition to the basic home economics courses.

Job Description — The business management option is designed to provide the student with the business skills needed to run a small business operation of one’s own such as dressmaking-alterations shop, a small dress shop, fabric store, etc.

PCC Program — Two year, non-transfer-able degree program designed for students who may wish to go into business for them-selves in a home economics related field such as commercial dressmaking. Business management courses are taken in addition to basic Home Economics courses.

Business Management Option

Job Description — The business management option is designed to provide the student with the business skills needed to run a small business operation of one’s own such as dressmaking-alterations shop, a small dress shop, fabric store, etc.

Minimun credits required for associate degree — 90
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<td>Bus 2.314</td>
<td>Small Business Operation</td>
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<td>EDP 2.100</td>
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</table>

Minimum credits required for associate degree — 90

**Merchandising Option**

**Job Description** — The merchandising graduate may assume a position of responsibility in the area of sales, buying, display, advertising, and/or control. He/she may supervise the selling, receiving, and checking of merchandise; keep inventory records; prepare displays; assist in operating merchandise for sale or assist in promotion.

**Opportunities** — It is expected that more than 105,000 job openings in the retail sales field will occur annually through the 1970's. It is estimated that there are about eight supervisory or executive jobs out of every 100 department store jobs. This means that chances for promotion are excellent.

**Potential Earnings** — Inexperienced sales people generally earn from $75 to $90 per week; some college education and part-time experience may increase this figure to $100 per week or better. A buyer in a fairly large store may earn from $10,000 to $15,000 a year.

**PCC Program** — A two year, non-transferable associate degree program for students wishing employable skills in a field of merchandising related to home economics. Merchandising courses are taken in addition to basic home economics courses.

**Departmental Credit Equivalents**

- HEc 7.650
- HEc 7.500
- HEc 7.670

**Minimum credits required for associate degree — 90**

**Professional Home Economist**

**Job Description** — A wide career field is open to the professional home economist with a baccalaureate degree including teaching, extension service, business, institutional management and dietetics, health, welfare, and research. Many home economists have found careers in business with the food industry, clothing manufacturers, household equipment makers, utility companies, trade associations, etc.

**Opportunities** — Good.

**Potential Earnings** — Average beginning salary for a home economics teacher with a B.A. is $37,600.

**PCC Program** — This college transfer program prepares the student for continued study toward a baccalaureate degree at an accredited four-year institution and for professional opportunities in foods and nutrition, institutional management, dietetics, management and housing, clothing and textiles, communications, high school and college teaching, nursery school teaching or family life and child development. Most of the "core requirements" for Home Economics majors at Oregon State University are offered at Portland Community College including:

- HEc 101 Orientation to Home Economics
- FL 225 Child Development
- CT 250 Textiles
- FN 218 Food Preparation
- Wr 1.102 English Composition or Skills
- Bus 2.319 Business Relations
- Bus 2.304 Principles of Retailing
- Bus 2.302 Fundamentals of Advertising
- Bus 2.304 Fundamentals of Marketing

**Potential Earnings** — Average beginning salary for a home economics teacher with a B.A. is $37,600.

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**Potential Earnings** — Average beginning salary for a home economics teacher with a B.A. is $37,600.
The Cosmetology program at Portland Community College is a cooperative endeavor between PCC and state-approved beauty schools. The cosmetology student will complete 40 credits of general studies at PCC and 53 credits (2500 clock hours) at a beauty school and the Oregon State Board of Cosmetology. All work may be taken at the convenience of the student. At the end of the required study, the student must pass the Oregon State Board of Cosmetology examination before being given a license to practice.

Job Description—The cosmetologist performs the following activities: manicuring, color application, permanent waving, shampooing, haircutting, hairstyling, finger waving, facials, wax fitting, conditioning, hair and skin analysis.

Opportunities—Job opportunities for experienced beauticians are available in salons (owner, manager, stylist), the cosmetic industry (merchandising, writing, research), and education (school owner, instructor in private public schools).

Potential Earnings—Much work is part time, depending on the individual. A full time operator can expect to earn from $6,000 to $12,000 per year for the first five years. Tips can make a difference; excellence is a definite factor as customers request specific operators.

PCC Program—The objectives of the program are 1.) to give the student the information and skills to become employable in the field of cosmetology; 2.) to increase skills and awareness in related subjects to enhance opportunities for employment and advancement. Upon completion of this program the student will receive an associate degree. To pass the state board examination required for licensing, the student must demonstrate theoretical knowledge of: hygiene, sanitation, bacteriology, dermatology, trichology, hair tinting, hair bleach-
Vocational Education Option (Beauty School Teaching)

VE 9.000 Philosophy and Techniques of Teaching at a Community College or Technical School

VE 9.001 Evaluation Techniques

VE 9.002 Psychology Learning

VE 9.003 Human Understanding

VE 9.004 Materials Production

Total

Minimum credits required for associate degree — 88

Sci 5.501, Applied Chemistry for Cosmetology, 3 cr/hr/week, 3 cr — The student will study chemical elements and the nature of the chemicals with which he or she will be dealing and their effect upon the hair and skin. The class will be taught through lecture, demonstration, and participation.

See the following sections in this catalog for other course descriptions: Visual and Performing Arts, Language Arts, Social Sciences, Science and Mathematics, Business, Education.

Portland Community College offers classes in this subject area in locations throughout the community such as Antiques, Changing Behavior in Children, Childbirth, Fashion Modeling, Folk Guitar for Children, Homesteading as an Alternative, Living with your Teenager, Understanding your Preschool Child, Blue Jean Stitchery, Interior Decorating, Home Remodeling, Breadmaking, Sourdough Breadmaking, Cake Decorating, Chinese Cookery, Creative Vegetable Cookery, Crepes and Omelettes, Fondue Cookery, French Cookery, Homesteading in Northern Cookery — French, Italian, German, Mexican, Meatless Cookery, Microwave Cookery, Preserving Food for Future Survival, Soapmaking, Baby Boutique, Creative Children's Wear, Crocheting, Drapery Making, Fashion Sewing, First Lessons in Sewing, Fitting, General Sew-In, Knit Casuals, Knit and Crochet, Knitting, Ladies Knit Pantsuits, Let's Sew Sweaters, Men's Knit Sport Coats, Men's Knit Pants, New Knit Fashion Trends, Tailoring, Teenage Sew-In, and Women's Pant Fitting.

New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number (e.g., Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g., RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
## Hospitality Services

Portland Community College offers a variety of training programs to prepare students for entry into hospitality services careers. Hotel - Restaurant - Institutional Management provides a background for middle-management positions. Since corporate procedures vary, a graduate of the PCC program should expect to begin work as a management trainee.

The Commercial Food Service Preparation program trains students for jobs as pantrymen, short order cooks, dinner cooks, and bakers' helpers. A student may enter the program at any time and leave when he/she has acquired job entry skills. The Sous Chef associate degree program is for students wishing additional training.

Short term programs such as Food Service Supervision, Culinary Assistant Training, and Independent Studies in hospitality services are offered to meet special needs of the industry.

## Hotel/Restaurant/Institutional Management

### Job Description
Specifications are different for hotel, restaurant, or institutional management. If you are interested in this career area, see a counselor for detailed job information. The skills gained in the PCC program are aimed at qualifying students for middle-management training positions.

### Opportunities
Management trainees and assistant manager positions available mainly with chains and franchise operations. Local and out-of-state positions available.

### Potential Earnings
From $2 per hour to $1.00 per hour.

### PCC Program
This associate degree program is designed to prepare students for a variety of positions within the food industry. Three options are available: Institutional Food Service Supervision, Commercial Food Service, and Hotel-Motel Operation.

### Core Program

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
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<td>HR 3.11</td>
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The student will select General Education electives necessary to meet the 95-credit requirement for an associate of applied science degree. Students with experience may wish to challenge courses; see a PCC counselor for details.

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his/her associate degree program from three of the following five areas: Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)

Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)

Communication courses (Writing, Speech)

Health and Physical Education courses

Science and Mathematics courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

HR 3.110, Orientation to Hospitality Industry, 1cr, 1lab hr/wk, 1cr — The student will be introduced to types of food services and will learn and be able to recall differences in types and philosophies, and problems peculiar to each.

HR 3.112, Food Preparation I, 2cr, 6 lab hr/wk, 4cr — The student will learn to produce food, to use materials, and to develop standards for food preparation. Student will learn the influence of kind of food, proportion of ingredients, manipulation of food materials, methods of cooking food and its nutritive value, economy in preparation, aesthetic appeal of foods, and sanitation procedures.

HR 3.113, Food Preparation II, 2 cr, 6 lab hr/wk, 4 cr — The student will develop menus and learn the importance of providing nutritionally adequate meals for clients. Student will learn how to estimate raw materials needed and percent of economic and nutritive loss through various cooking methods.

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<th>DEPT</th>
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Total credits in core program = 81
Total credits General Education = 5
Total credits required for associate of applied science degree = 95

The student will select General Education electives necessary to meet the 95-credit requirement for an associate of applied science degree. Students with experience may wish to challenge courses; see a PCC counselor for details.

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his/her associate degree program from three of the following five areas: Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)

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These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

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HR 3.112, Food Preparation I, 2cr, 6 lab hr/wk, 4cr — The student will learn to produce food, to use materials, and to develop standards for food preparation. Student will learn the influence of kind of food, proportion of ingredients, manipulation of food materials, methods of cooking food and its nutritive value, economy in preparation, aesthetic appeal of foods, and sanitation procedures.

HR 3.113, Food Preparation II, 2 cr, 6 lab hr/wk, 4 cr — The student will develop menus and learn the importance of providing nutritionally adequate meals for clients. Student will learn how to estimate raw materials needed and percent of economic and nutritive loss through various cooking methods.
HR 3.115, Food Science, 3 cl hr/wk, 3 cr—The student will learn basic science fundamentals which relate to food services: use of metric system, use of units, use of different temperature scales, effect of temperature control and bacterial growth.

HR 3.120, Hotel Front Desk Procedures, 3 cl, 2 lab hr/wk, 4 cr—The student will learn the crucial human and public relations responsibilities of the front office and the fundamental principles of management, routine procedures, and accounting techniques. The student will learn the following procedures: receiving guests, mail and information, checking out guests, sales and registration, rooming facilities and emergencies, sales and accounting records, transcript and posting machines.

HR 3.121, Housekeeping Procedures, 2 cl, 2 lab hr/wk, 3 cr—The student will learn the organization and functions of the housekeeping department and its relationship to other departments in a hotel or motel, purchasing, care of furnishings and supplies, and general procedures for the maintenance of facilities.

HR 3.122, Money Control Techniques, 2 cl, 4 lab hr/wk, 4 cr—This course enables the student to apply basic principles of business law (including Uniform Commercial Code) to the governing of business activities.

HR 3.200, Institutional Food Preparation, 2 cl, 6 lab hr/wk, 3 cr—The student will learn the proper procedures in set-up, equipment, arrangement of working units and departmental management. The student will be introduced to food nutrition, importance of protection of the public health in proper handling of foods. Personal appearance and cleanliness of food service personnel is stressed.

HR 9.110, Maintenance and Engineering, 2 cl, 3 lab hr/wk, 4 cr—The student will learn the principles of safety in all aspects of food service. Emphasis is on three leading hazards: cuts, burns, and falls, and how to avoid them. Important of protection of the public health in proper handling of foods. Personal appearance and cleanliness of food service personnel is stressed.

HR 9.111, Food Technology, 3 cl, 3 lab hr/wk, 4 cr—The student will learn basic science fundamentals which relate to food services: use of metric system, use of units, use of different temperature scales, effect of temperature control and bacterial growth.

HEC 7.306, Nutrition II, 2 cl, 2 lab hr/wk, 3 cr—The student will study various nutrients and their interrelationships. Newer scientific investigations, current literature, application of experimental techniques to the study of human nutritional needs, and contemporary nutrition problems will be reviewed.

HEC 7.307, Therapeutic Nutrition, 2 cl, 2 lab hr/wk, 3 cr—The student will apply principles of health maintenance and dietary modifications necessary in pathological conditions. He/she will study characteristics of most commonly used medical diets; nutritional adequacy will be analyzed; effects of prolonged use will be reviewed.

Commercial Food Preparation

Job Description—A pantry man prepares dressings, salads, cold sandwiches, and desserts. A short order cook prepares foods on a grill (e.g., grilled sandwiches, fried eggs, french fries, etc.) A dinner cook prepares foods suitable for a full-course meal. A baker’s helper assists the baker in preparing pastries, breads, and baked desserts.

Opportunities—Students who apply themselves and show willingness to work will be able to find jobs. New opportunities are opening in airline catering, merchant ships, etc.

Potential Earnings—Vary from $2.00 to $4.00 per hour starting.

PCC Program—The Commercial Food Preparation training program is designed to prepare students for employment in the commercial food service industry. Students learn job entry skills and knowledge for specific job categories. The learning program is designed to prepare pantry men, short order cooks, dinner cooks, and bakers’ helpers. This program was developed and operates in close cooperation with labor and representatives from the food service industry. The learning experiences reflect the needs of the industry. The training program is based upon performance objectives and is highly flexible. A student may proceed through the training program at his own pace. When one set of modules is completed the student will proceed to the next set. Students are not required to progress in groups as in traditional classes.

Students prepare and serve meals for groups of varying sizes from a broad selection of foods. Opportunities for work in various settings include restaurants, hotels, motels, housekeeping departments, and institutions.

The length of the training program for this job is determined by the student’s job interests and for different job assignments.

After receiving training to a satisfactory level for job entry, a student may choose to leave the program and go to work. After a period of work the student may re-enter the training program at his own rate and for different job assignments.

The training for dinner cook generally requires nine months. Training time for
Sous Chef

Job Description—A sous chef is an accomplished chef who supervises kitchen personnel in the preparation of food.

Opportunities—Excellent.

Potential Earnings—$750 to $1,000 per month.

PCC Program—A prerequisite for the Sous Chef program is successful completion of Commercial Food Preparation and the approval of the coordinator of Hospitality Services or five years verifiable experience in commercial cooking with one term of Commercial Food Preparation and a passing score on a competency exam.

The student will learn to balance menu planning, pricing, and foodservice costs. The student will learn to develop creative menus by considering the needs of the customer and the budget constraints of the kitchen. The student will also learn how to manage the kitchen staff, coordinate purchasing, and maintain accurate records.

Instrument and practice will include work study sheets completed by students; 2) supervision of all kitchen personnel; 3) counseling with students and dietitians by course coordinator or instructor; and 4) individual reports.

An individual may enter the program at the beginning of any of the three terms.

At the completion of all three courses, application may be made for membership in the HIEFS (Hospitality, Institution, and Education Food Service Society), and American Dietetic Association sponsored organization. Membership requires three four-credit courses with related on-the-job experiences. A project selected by the student and supervisor or administrator must be completed.

HR 9.103, Food Service Supervision, 4 cr
To acquaint student with Food Service department and to develop supervision techniques.

Unit 1: An Over-View of the Food Service Department —4 hours—The student will develop an understanding of the relationship of the Food Service department to the overall facility and will learn to develop standard ethics for inter-intra departmental relationships.

Unit 2: Supervisory and Job Training Techniques —32 hours—The student will develop an awareness of the part played by skillful supervision in directing work of others, some knowledge of basic psychology of human behavior, specific techniques of motivating employees, skill in both written and oral communication, knowledge of tasks and operations or a group of operations, to determine the most efficient method of performance, and a definite method of job instruction effective in teaching employees.

HR 9.104, Food Service Supervision II, 4 cr
The student will develop an awareness of nutritional needs, practices, along with overall sanitation and safety requirements.

Unit 1: Nutrition and Diet Modification —22 hours—The student will develop an understanding of the importance of nutrition in promoting health and preventing disease, an understanding of how food is used by the body, an appreciation of how the nutritionally adequate diet can be modified to prevent and treat disease, an appreciation of the responsibility to modify the normal diet in accordance with the diet manual approved by the medical staff of the facility.
Unit 2: Housekeeping, Safety, and Sanitation — 14 hours — The student will develop an appreciation of the necessity of healthful practices in housekeeping, sanitation, and personal hygiene in the food service department; an awareness of the methods and the importance of safety and accident prevention in food service.

HR 9.105, Food Service Supervision III — 4 cr — The student will develop techniques in food purchasing, cost accounting, menu planning along with principles of quantity food preparation.

Unit 1: Food Purchasing, Food Cost-Accounting, and Menu Planning — 15 hours — The student will develop an understanding of the menu as the basis for all food service activity, skill in the techniques of menu planning to meet the needs of the group, an appreciation for the creative and aesthetic aspects of quality food and service, an understanding of food and equipment specifications, a recognition of quality characteristics of food as purchased, and understanding of the proper conditions for the storage of food.

Unit 2: Principles of Quantity Food Preparation — 18 hours — The student will develop knowledge of the relationship of food preparation techniques to the quality of the menu item, an appreciation and recognition of high-quality food at all cost levels, an understanding of the various types and standards for food service facilities.

Second Term

HR 3.108 Job Skills II (Advanced)
Job Finding I
Job Interview (Role Playing)
Food Training Routines II
Lab II (College Job Experience)
Communication Skills II

Third Term

HR 3.109 Job Skills III (Post Advanced)
Job Finding II
Job Interview
Food Training I and II

HR 3.107, Orientation to Culinary Assistant Training — Student will learn physical plan and work to be done in each area.

HR 3.107, Job Skill I — Student will learn the job skills of dishwasher, bus boy or girl, bakers' helper.

HR 3.107, Time and Self-Control — Student will develop speed through time limits set upon a given amount of work.

HR 3.107, Work Schedules Lab I — Student will learn to work out job schedule with teacher and learn rules and regulations of the job.

HR 3.107, 3.108, Food Training Routines
Student will learn to use the dish machine properly as well as salad preparation and measuring.

HR 3.108, Job Skills II (Advanced)
Simplified vegetable preparation with French knife. Student will learn table setting and limited foodservice.

HR 3.108, Job Finding (Introduction)
Student will learn where to look for a job and how to write a resume.

HR 3.108, Job Interview (Role Playing)
Student will learn to sell himself to an employer by talking on tape and practicing interviews with friends and teachers.

HR 3.108, Lab II (College Job Experience)
Student will practice on-the-job skills in college eating facilities.

HR 3.107, 3.108, Communication Skills I and II — Student will learn the art of conversation and practice correcting his or her speech problems.

HR 3.109, Job Skills III (Post Advanced)
Advanced training for somestudents.

HR 3.109, Job Finding II — Six hour class at the employment office.

HR 3.109, Job Interview and Food Training I and II — Courses may be repeated for those students needing more help.

Portand Community College offers classes in this subject area in locations throughout the community such as” Breadbaking, Bulgarian Cookery, Cake Decorating, Cannning and Freezing, Chinese Cookery, Creative Vegetable Cookery, Crepes and Omelettes, Diets for Special Health Problems, French Cookery, Cookery of India, International Cookery for the Deaf, Japanese Cookery, Microwave Cookery, Oriental Cookery, and Patio Cookery. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding
General studies courses are designated by a two- or three-digit number (e.g. Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four-year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
The landscape industry today is faced with the challenging task of providing raw materials, knowledge, and manpower to beautify residential, school, commercial, industrial, and recreational sites. The landscaping program at Portland Community College trains qualified individuals for all phases of the industry: producing a product (wholesale growers), marketing the product (wholesale and retail sales), designing the product (landscape designers), installing the product (landscape contractors), maintaining the product (landscape gardeners), and constructing and maintaining golf courses (turfgrass management). This training is not limited to people new to the industry but is also for those presently employed in landscape work who wish to upgrade their skills through further education and training. A one year certificate and a two associate degree programs are offered.

**Job Description**—The individual works outdoors and with people (contractors and customers). Positions are available with wholesale growers, retail and wholesale sale centers, landscape contractors, and landscape gardeners.

The turfgrass phase of the landscape industry requires trained persons to properly install, maintain, and maintain areas of turfgrass which may be found on residential lawns, golf courses, and city parks.

**Opportunities**—Excellent. Difficult for landscape managers to locate qualified employees. With the present trend in home construction using the golf course subdivision, management of turfgrass is in constant demand and is a rapidly expanding field.

**Potential Earnings**—$3.00 to $5.00 per hour starting. Turfgrass - $600 - $800 per month starting.

**PCC Program**—One year certificate and second year associate degree options in Landscape Design and Turfgrass Management are offered. The Landscape Design option includes courses in plant materials, horticulture, small business operations, plant propagation, and landscape seminar. The Turfgrass Management option trains persons for work in all phases of turfgrass management which include turfgrass construction (installation), turfgrass maintenance (mowing, fertilizing, irrigating, disease, and pest control), turfgrass management (greenkeeper), and turfgrass production (seed production).

**Admissions**—Due to the interest in the Landscape Technology program at Portland Community College, there are more applications than the facilities can accommodate. Therefore, students enrolling in the program must complete a personal counseling session with the department chairman prior to registering for classes.
La 8.105, Basic Horticulture, 3 cl, 2 lab hr/wk, 4 cr — This applied science course will familiarize the student with the way in which a plant grows within its environment. The effects of soil and water management upon plant growth will be studied. The student will learn to perform some of the basic horticultural skills necessary in landscape work.

La 8.106, Soils and Drainage, 2 cl, 2 lab hr/wk, 3 cr — This course will familiarize the student with common soil types of the area. The problem of soil effect upon plants in the landscape will be examined in detail. The student will learn to identify and correct poor soil conditions. Students will also work with drainage problems and develop methods for correcting these problems. Soil composition and soil nutrients will also be studied.

La 8.107, Landscape Irrigation, 2 cl, 2 lab hr/wk, 3 cr — This is a basic course in irrigation system design for residential work. Students will gain knowledge in the design, construction, and maintenance of irrigation systems.

La 8.108, Plan Propagation, 2 cl, 2 lab hr/wk, 3 cr — In this course the student will learn how plants are reproduced. The student will study both sexual and asexual reproduction on ornamental landscape plants. The knowledge and skill of actual propagation of plants will be learned by the students through laboratory exercises.

La 8.109, Grounds Maintenance, 2 cl, 2 hr, 2 cr — Maintaining a landscape area is one of the most important phases of all landscape work. This course will familiarize the student with the types of maintenance operations and equipment used in the industry. Field trips to areas where heavy maintenance is required will augment classroom instruction. The student will learn how to prune, spray, fertilize, irrigate, and mow.

La 8.110, Landscape Construction Practices, 1 cl, 6 lab hr, 4 cr — Students will learn the basic methods of construction of landscape structure. Emphasis will be placed upon identifying materials used in landscape construction and will include instruction in using wood, concrete, and stone in construction.

La 8.111, Landscape Seminar, 1 cl, 1 hr, 1 cr — This course is designed to help the student with his/her internship experience. The student will use the sessions to discuss problems and insights encountered in assignments.

La 8.112, Landscape Internship, 16 lab hr/wk, 6 cr — This course is on the job training to enable students to gain actual work experience in the landscape industry. Students will work two days (16 hours) each week in the employment of one of the local landscape firms.

La 8.113, Plant Composition, 2 cl, 2 lab hr/wk, 3 cr — This course will familiarize the student with the various aspects of plant arrangement in the landscape design. Major emphasis will be placed upon the colors, textures, form, and size of plants and how this influences their use in the landscape project. Students will be instructed in the sketching of various plants to illustrate the characteristics of the plant. Students will gain knowledge of preparation of detailed planting plans used in landscape design.

La 8.114, Basic Landscape Design, 2 cl, 4 lab hr/wk, 4 cr — The student will be instructed in techniques of graphic layout used in the field of landscape design. Major emphasis will be upon orientation of the student to the use of the drawing table and the equipment necessary for design work.

La 8.115, History of Landscape Architecture, 3 cl, 2 hr/wk, 3 cr — An introduction to the history of gardening and landscape architecture and how it has evolved to its present form.

La 8.116, Layout of Small Properties, 2 cl, 6 lab hr/wk, 5 cr — This course will be designed to solve design problems associated with small properties such as the single-family residence, small apartment areas, commercial sites, and small public areas such as neighborhood parks.

La 8.117, Landscape Construction, 2 cl, 4 lab hr/wk, 4 cr — The student will be instructed in drawing grading plans, contour maps, and detail sheets of various structures: wood decks, concrete walks, concrete patios, retaining walls.

La 8.118, Landscape Design Problems, 2 cl, 6 lab hr/wk, 5 cr — The emphasis in this course will be upon problem solving in the design of large properties. The student will work with the design of such properties as subdivisions, industrial parks, regional parks, large multiple family developments, and recreational areas.

La 8.119, Landscape Construction, 2 cl, 4 lab hr/wk, 4 cr — The student will combine design elements and working drawings into completed landscape design solutions. Emphasis will be placed upon layout and design of large irrigation systems for large areas.

La 8.120, Plane Survey, 2 cl, 4 lab hr/wk, 4 cr — This course is designed to instruct the student in the procedures of basic plane surveying. The student will learn to operate instruments used in determining elevation for site development work. The student will also become familiar with the use of the surveyor’s transit which is used in traversing property boundaries.

La 8.121, Turfgrass Seminar, 2 cl, 1 hr, 1 cr — This course is designed to help the student with his/her internship experience. The student will use the sessions to discuss problems and insights encountered in assignments.

La 8.122, Turfgrass Internship, 16 lab hr/wk, 6 cr — This course is on the job training which will enable the student to gain actual work experience in the turfgrass industry. He/she will work two days (16 hours) each week in the employment of one of the local turfgrass firms.

La 8.123, Agricultural Chemistry, 3 cl, 2 lab hr/wk, 4 cr — This course will be designed to develop basic principles of chemistry with a major emphasis placed upon the use of agricultural chemicals and their turfgrass applications.
Portland Community College offers classes in this subject area in locations throughout the community such as Basic Lawn and Yard Care, Flower Arranging, Gardening, Indoor and Patio, Hobby Greenhouse, Home Gardening, Homesteading as an Alternative, House Plants, Landscaping, Native Trees and Flowers of Oregon, Organic Gardening, Plant Propagation, Plant Taxonomy, Rose Care, Wild Mushroom Identification, Wildflowers of the West, and Ikebana. New education programs in the community are planned each quarter.

For a complete schedule of times and locations, call 244-6111.

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For more information contact:
Arthur Stevens
Dean
Edward Maddox
Coordinator
Instructors:
Ethel Biskar
Bill Griffith
Dick Hollenbeck
Jerry Talent
Leather Crafts Technology

Job Description — The leather craftsman is usually self-employed in the business of repairing and maintaining shoes or saddles, harness, and tack. The craftsman uses small handtools and machines to repair shoes and/or to fashion hides into leather articles. Small leather goods such as dog leashes and scabbards may also be constructed.

Opportunities — Although most leather craftsmen are self-employed, opportunities for success in this small business are increasing because of the number of leather products sold.

Potential Earnings — Because of the independent nature of the craft, earnings vary and depend on the personal energy of the craftsman.

PCC Program — Leather Crafts Technology offers the student two options — saddle making and shoe repair. The program is based on performance objectives, and the craftsman certifies that a student can satisfactorily perform the objectives. Students work five- to eight-hour days each week for one year with a craftsman actively involved in leather work. At this time a student should be trained for entry-level employment or self-employed as a leather craftsman. Students do not observe term breaks as in other programs. A student may elect to work fewer hours during the day; however, it will then take longer for him/her to complete the requirements for the certificate. The student will receive a certificate at the successful completion of the program.

There are no general education requirements for the certificate; however, students are encouraged to take courses which may enhance their craft such as the following:

Bus 2.314 Small Business Operations
Bus 2.304 Fundamentals of Marketing
Bus 2.101 Introduction to Accounting I
Art 257 Jewelry and Metalsmithing
Art 195 Basic Design

The performance objectives of tasks listed below cannot be calendarized because: 1) the program is open entry — no dates or terms; 2) with the exception of some basic skills, most of these tasks depend on the availability of particular jobs; and 3) previous experience and learning rate alter the length of the program.

Cost — Tuition for the one year is equal to the cost for four terms full-time. The student is required to buy approximately $150 worth of tools for saddle making only.

Admissions — Because the program has a limited enrollment, interviews with the program coordinator Robert Hughitt and the craftsman with whom the student would be working are required.

English Saddles and Tack, Western Saddles and Equipment

Upon completion of the program, the student will do commercially acceptable work in the following tasks:

English Saddles and Tack — Hand stitching (needles, stitch marking, knots, hidden stitches, etc.); identification, use, and maintenance of tools; leather cutting; edge finishing (dressing, trimming); halter construction; leather molding; halter, bridle, strap repair; leather cleaning, oiling, staining; lining, strap, billet, tree repair; saddle, bridle reassembly; leather selection and grading; hardware selection and purchase; nylon sewing and repair; machines stitching.

Saddle Construction — Tree preparation; fitting the person to the saddle; seat molding, suede, pigskin, etc.; skirts, flaps, hardware — to seat; proficiency in different types of saddles; polo, jumping, park, racing, gaited, dressage; side saddle repair; billets; stirrup leathers, girths.

Strapwork — Martingales; bridles — polo, hunting, western, gaited; bits — identification and use; roller; shipping boots, polo boots; sanding, packsaddles.

Harness repair and construction; shop management; buying and selling; time calculations.

Shop maintenance; machine maintenance.

Western Saddles and Equipment — Leather braiding (seven strands, inverted); hand stitching (needles, stitch marking, knots, hidden stitches, etc.); identification, use, and maintenance of tools; leather cutting; edge finishing (dressing, trimming); halter construction; leather molding; halter, bridge, strap repair; leather cleaning, oiling, staining; lining, strap, billet, tree repair; saddle, bridle reassembly; leather selection and grading.

Nylon sewing and repair; Machine stitching.

Saddle Construction — Tree preparation; fitting the person to the saddle; seat molding, suede, pigskin, etc.; skirts, flaps, hardware — to seat; proficiency in different types of saddles; roping, bulldogging, cutting, barrel racing, general purpose.

Billets; stirrup leathers, girths.

Strapwork — Martingales; bridles — split ear, brow-band, molded ear, hackamores, bosses, and theadore knots; bits — identification and use.

Skid boots, quarter boots.

Packsaddles; tooling and decorative work; patterns and pattern making; harness repair and construction; shop management; buying and selling; time calculations; cutting for stretch, shrink and static; textiles: nylon and cotton; shop maintenance; machine maintenance.

Shoe Repair

Upon completion of the program, the student will do commercially acceptable work in the following tasks:

Jack work; shoe disassembling; putting on heels; sanding, beveling; preparation for half soles; finish work (sanding and finishing); use of the patch machine; repair of rips, holes.

Machines: sewing; num kegs; finishers; auto-solers; 5-in-1; stitchers; heel wheel.

Hand stitching; identification of cements, leathers, plastics, machines, tools; identification and purchase of leathers, soles, etc.; customer relations; accessories, etc.; stretching; basic orthopedics (field is a specialty in itself); pricing, cleaning, polishing, basic dyeing preparation; ordering.

For more information contact:
Leonard Garmire
Dean
Robert Hughitt
Department Chairman
Instructors:
Hans Biglajzer
Norman Bjenskaas
Gail Denman
William Duff
Lee Nichols
William Olds
Dyes Rawlings
David Vaneck
Legal Assistant

In recent years the legal profession has been faced with the critical problems of an increasing demand for legal services, spiraling costs, and longer working hours. As a result of these pressures, many state bar associations and individual law firms have looked to community colleges to train specialists to help solve these problems. The Oregon State Bar and the Oregon Legal Secretaries Association have assisted Portland Community College in developing and offering certificate and associate degree programs in Legal Assistant training.

Job Description—The legal assistant is a specially trained nonlawyer who assists an attorney in the performance of certain limited professional services under the attorney's direction and control and can perform any acts under such direction except: accept a case, set a fee, give legal advice, vouch for it to the client and becomes responsible for it to the client. (Definition taken from Canon 3 of the Code of Professional Responsibility and from Opinion 316 of the American Bar Association.)

Opportunities—A growing human services occupation.

Potential Earnings—$7,200-$12,000.

PCC Program—A student will have the choice of taking only individual courses, completing requirements for a PCC certificate, or of electing the associate degree option. In addition, a formal program for the certification of legal assistants has been created by the Oregon State Bar Legal Assistant Committee.

Certificate Program

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 5.121</td>
<td>Introduction to Law and Law Ethics</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(This course should be taken first)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA 5.101</td>
<td>Introduction to Law Office Management</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.104</td>
<td>Introduction to Legal Research and Library Use</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.103</td>
<td>Introduction to Family Law</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.105</td>
<td>Introduction to Probate Practice</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.106</td>
<td>Introduction to Estate Planning</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.107</td>
<td>Introduction to Litigation</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.109</td>
<td>Introduction to Property Law</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.110</td>
<td>Introduction to Tax Law</td>
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<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.111</td>
<td>Introduction to Bankruptcy Law</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>LA 5.112</td>
<td>Community Resources</td>
<td>3</td>
<td>3</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LA 5.113</td>
<td>Techniques of Interview</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Electives*</td>
<td>9</td>
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</tr>
<tr>
<td></td>
<td>Total credits required for Legal Assistant Certificate — 45</td>
<td></td>
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</table>

Associate of Applied Science Degree Program

Prerequisite: Satisfactory completion of the certificate program (45 credit hours) or approved equivalent.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 5.102</td>
<td>Advanced Law Office Management</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.108</td>
<td>Advanced Litigation</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.122</td>
<td>Introduction to Criminal Law for Legal Assistants</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.115</td>
<td>Introduction to Insurance Law</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.116</td>
<td>Introduction to Corporate Law Practice</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LA 5.123</td>
<td>Investigation Techniques for Legal Assistants</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CJA 112</td>
<td>Introduction to the Criminal Justice System (Courts)</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total credits for second year program — 45
Total credits for associate of applied science degree — 90

Recommended Legal Assistant Electives

LA 5.120 Introduction to Legal Terminology (particularly for students new to this field and should be taken in their first term).

Other electives will be offered as the course outlines are developed by the Oregon State Bar.

Recommended General Education Electives

| Soc 204,205,206 General Sociology |
| Wrt 111,112,113 English Composition |
| Psy 111 Personality and Development |
| Psy 201,202,203 General Psychology |
| SS 111 Stenography |
| SS 121 Typing |
| BA 211 Principles of Accounting |
| BA 226 Business Law |

*General Education Requirements

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his/her associate of applied science degree program from three or more of the following course areas:

- Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
- Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
- Communication courses (Writing, Speech)
- Health and Physical Education courses
- Science and Mathematics courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

CJA 112 (T), Introduction to Criminal Justice System (Courts), 3 cr/hr/wk, 3 cr—The student will study and discuss the court systems including procedures from incident to final disposition; principles of constitutional, federal, state, and civil laws as they affect the court system; kinds and degrees of evidence; and rules governing admissibility of evidence in court.

LA 5.101, Introduction to Law Office Management, 3 cr/hr/wk, 3 cr—The student will study law office organization, specialized bookkeeping and accounting for attorneys' fees and billing procedures, scheduling and calendarizing, filing, management of personnel, proofreading, management of investigations and file preparation, legal drafting, preparation of law office forms, handling of incoming and outgoing mail, supplies, office financial statements, and disbursement on behalf of clients.

LA 5.102, Advanced Law Office Management, 3 cr/hr/wk, 3 cr—The student will learn practical solutions to law office management problems as discussed in LA 5.101 in order to provide more efficient, more economical, and better service to the public.

LA 5.103, Introduction to Family Law, 3 cr/hr/wk, 3 cr—The student will learn, under the direction and control of an attorney, to prepare initial documents, pleadings associated with the action, findings of fact, conclusions of law, and orders for judgment as they relate to divorce, separation, custody, legitimacy, adoption, change of name, guardianship, support, and separation agreements.

LA 5.104, Introduction to Legal Research and Library Use, 3 cr/hr/wk, 3 cr—The student will study the function of the law library and will develop research skills through the use of digests, encyclopedias, reporter systems, and practice manuals.

LAS.105, Introduction to Probate Practice, 3 cr/hr/wk, 3 cr—The student will learn how to prepare and file the necessary papers in order to administer an estate under Oregon law.

LA 5.106, Introduction to Estate Planning, 3 cr/hr/wk, 3 cr—The student will learn legal assistance in respect to wills, trusts, estates, accounting, administration, devices, bequest, lapse, afterborn children, will execution, life insurance, and estate planning. The student will learn to assist in drafting a will and/or trust required to implement the estate planning.

LA 5.107, Introduction to Litigation, 3 cr/hr/wk, 3 cr—The student will study the litigation process which involves the resolution of disputes through the use of the court system. He/she will be introduced to the differences between civil and criminal litigation, with the emphasis on civil litigation.
The student will also study the principles of the law of torts which will require the preparation and use of pleadings and other documents involved in the trial and appeal of civil action.

LA 5.108, Advanced Litigation, 3 cl hr/wk, 3 cr—A continuation of LA 5.107. The student will work in detail with the forms and documents prepared by legal assistants in the litigation process.

LA 5.109, Introduction to Property Law, 3 cl hr/wk, 3 cr—The student will study and utilize the forms and procedures in real estate transactions and conveyances such as deeds, contracts, leases, deeds of trusts, liens, planning, zoning, amendments, assessments, releases of liens, searches, foreclosures, variances, and subdivisions. The student will also study and utilize the forms and procedures for personal property, secured transactions, bills of sale, transfers of securities, assignments, and bulk sales.

LA 5.110, Introduction to Tax Law, 3 cl hr/wk, 3 cr—The student will learn to assist the attorney in the preparation of income tax returns for estates, trusts, and individuals. He/she will also study Oregon and federal income tax law as well as the various administrative and judicial tribunals and their jurisdiction as involved in the determination of income tax controversies.

LA 5.111, Introduction to Bankruptcy Law, 3 cl hr/wk, 3 cr—The student will study the Bankruptcy Act, jurisdiction of bankruptcy court, the duties and powers of the trustee in bankruptcy, and the discharge of bankruptcy. The student will learn how to assist the attorney in the preparation of petitions, schedules, and other bankruptcy forms.

LA 5.112, Community Resources, 3 cl hr/wk, 3 cr—The student will learn about public and private community agencies and organizations (including medical, social, educational, business, judicial, and labor organizations) that are available to offer information to assist a legal practice. The student will learn how to contact and gain information from these agencies and organizations.

LA 5.113, Techniques of Interview, 3 cl hr/wk, 3 cr—The student will learn how to interview clients in relation to the type of information needed by a legal assistant to accomplish a specific job. Simulated interviews experienced in a legal setting will be conducted by the student.

LA 5.115, Introduction to Insurance Law, 3 cl hr/wk, 3 cr—The student will learn the various types of insurance, claim procedures, the insured’s duty to the insurance company, the insurance company’s duties to the insured and to third parties, actions on policies of insurance, actions against insured defendants, and the regulation of insurance companies in Oregon.

LA 5.116, Introduction to Corporate Law Practice, 3 cl hr/wk, 3 cr—The student will learn the most significant state corporation laws; how to assist in the preparation and filing of various documents necessary to form and operate a corporation; how to draft resolutions to be voted upon at corporate shareholders’ and directors’ meetings; and how to draft resolutions to pay dividends to shareholders or to terminate the business and distribute property to creditors and shareholders.

LA 5.120, Introduction to Legal Terminology, 3 cl hr/wk, 3 cr—The student will learn to identify, pronounce, and spell commonly used legal terms and apply this information to legal situations and transactions.

LA 5.121, Introduction to Law and Law Ethics, 3 cl hr/wk, 3 cr—This course is designed to provide the student with a general understanding of the structure and function of law and the court system; the operation of a law office, law ethics; and an overview of various substantive law fields.

LA 5.122, Introduction to Criminal Law for Legal Assistants, 3 cl hr/wk, 3 cr—General criminal law and procedure will be studied to provide the student with a basic understanding of the criminal justice system. The legal assistant’s role in the criminal justice system will also be discussed.

LA 5.123, Investigation Techniques for Legal Assistants, 3 cl hr/wk, 3 cr—The student will study fundamentals of investigation, theory, and history from crime scene to courtroom with emphasis on techniques appropriate to specific cases involving legal assistants.

Portland Community College offers classes in this subject area in locations throughout the community such as People’s Law School. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM 5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
Machine Technology

Job Description—The machinist operates various types of metal removing equipment such as lathes, drill presses, milling machines, grinders, etc. The machinist may specialize in the operation of one type of a machine or may work in a shop where he/she is required to perform equally well on several different machines.

Opportunities—Opportunities are expected to increase through the 1970's.

Potential Earnings—Wages for a qualified machinist vary from $10,000 to $12,000 a year.

PCC Program—Offers training for entry level employment in the machine trades industry. Instruction is given in various machining processes including the operation of engine lathes, milling machines, sensitive drill press, surface grinders, tracer lathes, the radial drill press, and tool and cutter grinding. In addition to shop theory and practice involving learning manipulative hand and machine skills, the student studies such subjects as basic metallurgy, blueprint reading, shop mathematics, and other related aspects of this craft.

Students enrolled in Machine Technology will spend 25 hours per week in the machine shop and related machine theory classes. Upon satisfactory completion of the first three term sequence, students receive a certificate. An Associate of Applied Science in Machine Technology degree is conferred upon satisfactory completion of six quarters (25 hours per week) of machine shop, plus 18 credit hours of general education courses.

Students will be required to perform all steps from the blueprint interpretation to tape punching, debugging, and machining a complete part to prescribed size and tolerances.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201]
those carrying transferable credits are followed by a (T) and may be transferred to an accredited four-year institution of higher education.

Career program courses are assigned decimal numbers (e.g., RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact
Robert Palmer
Dean
Glen Fors
Department Chairman
Instructors:
Vince Pelly
George Scott
Lou Whitlatch
The Portland Community College Management/Supervisory Development program seeks to provide the student with an understanding of management concepts and an opportunity to develop practical applications. Participants become actively involved by listening and talking, putting principles and techniques to work during class. Classrooms are viewed as learning organizations where participants continually test course material in light of their own experiences.

Instructors are successful practicing managers who use their experiences and leadership skills to develop a productive class atmosphere and to ensure that subject matter is based in reality.

Participants bring a wide variety of management/supervisory experiences and educational backgrounds to the classroom, enhancing the relevancy of each course. Enrollment is predominately full-time working people at all levels of business, industry, labor, government, and education who are interested in developing more effective management/supervisory skills. A number of full-time students from other PCC departments provide opportunity to test his/her knowledge through his/her own experiences.

The college awards an Associate of Applied Science in Management/Supervision degree at the completion of a two year sequence (90 credit hours). A Certificate in Management/Supervision (18 credit hours) and an Advanced Certificate in Management/Supervision (45 credit hours) are also granted. All courses taken toward a certificate may be applied toward the degree.

There is no minimum time limit for the completion of M/SD certificates or degrees. Consequently, participants are urged to limit their course load per term according to their commitments at work and at home. Day and evening courses are offered at various times and locations throughout the PCC district.

The Management/Supervisory Development department believes that effective education is based on high quality content and responsiveness to community needs. In addition to regularly scheduled classes, PCC offers a large number of in-house courses and comprehensive management development programs tailored to the specific requirements of organizations throughout the greater Portland area.

Please contact PCC's Management/Supervisory Development department for assistance in planning a personal or organizational program.

### Certificate (in Management/Supervision)

Students may take courses in the sequence of their choice.

**Required Core (9cr)**

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP</td>
<td>9.500</td>
<td>Principles of Management Supervision</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDP</td>
<td>9.502</td>
<td>Organizational Psychology</td>
<td>3</td>
<td>3</td>
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<tr>
<td>SDP</td>
<td>9.503</td>
<td>Oral Communications</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td>9</td>
<td>9</td>
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</tr>
</tbody>
</table>

**Restricted Electives (9cr)**

Students may choose a minimum of 9cr from the following:

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP</td>
<td>9.506</td>
<td>Human Relations</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDP</td>
<td>9.512</td>
<td>Writing for Results</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDP</td>
<td>9.504</td>
<td>Work Analysis and Improvement</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDP</td>
<td>9.508</td>
<td>Labor Management Relations</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>SDP</td>
<td>9.546</td>
<td>Power Reading and Thinking</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td>9</td>
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<td></td>
</tr>
</tbody>
</table>

**General Education Electives**

A maximum of three General Education elective credits may be substituted for three of the nine Restricted Elective credits required for this certificate.

Minimum credits required for certificate — 18

### Advanced Certificate (in Management/Supervision)

Students may take courses in the sequence of their choice.

**Required Core (21cr)**

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP</td>
<td>9.500</td>
<td>Principles of Management Supervision</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDP</td>
<td>9.502</td>
<td>Organizational Psychology</td>
<td>3</td>
<td>3</td>
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<tr>
<td><strong>Totals</strong></td>
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<td></td>
<td>21</td>
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</table>

**Restricted Electives (18cr)**

Choose a minimum of 18cr from the following:

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP</td>
<td>9.501</td>
<td>Oral Communications</td>
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<tr>
<td>SDP</td>
<td>9.507</td>
<td>Writing for Results</td>
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<td>3</td>
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</tr>
<tr>
<td>SDP</td>
<td>9.504</td>
<td>Training for Results</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>SDP</td>
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<td>Human Relations</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>SDP</td>
<td>9.508</td>
<td>Labor Management Relations</td>
<td>3</td>
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</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td>45</td>
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</tr>
</tbody>
</table>

**General Education Electives**

Must total at least six credits including any taken for Certificate in Management / Supervision.

Minimum credits required for advanced certificate — 45 (27 credits beyond Certificate in Management / Supervision)

### Associate Degree

Students may take courses in the sequence of their choice.

**Required Core (36cr)**

<table>
<thead>
<tr>
<th>Dept</th>
<th>Crs</th>
<th>Title</th>
<th>Class/Lab Cr</th>
<th>Hrs/Wk</th>
<th>Hr</th>
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</thead>
<tbody>
<tr>
<td>SDP</td>
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<td>Principles of Management Supervision</td>
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<td><strong>Totals</strong></td>
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<td>36</td>
<td>36</td>
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</tr>
</tbody>
</table>

Please contact PCC's Management/Supervisory Development department for assistance in planning a personal or organizational program.
Restricted Electives (36 cr)

Choose a minimum of 36 cr from the following:

SDP 9.530 Creative Thinking 3
SDP 9.546 Power Reading and Thinking I 3
SDP 9.544 Management by Objectives* 3
SDP 9.526 Minority Relations 3
SDP 9.511 Creative Thinking II 3
SDP 9.543 Alcohol and Drug Abuse in Business and Industry 3
SDP 9.516 Personnel Management 3
SDP 9.555 Organizational Structure and Planned Change * 3
SDP 9.562 Safety Management * 3
SDP 9.534 Labor Relations Seminar: Private Sector* 3
SDP 9.545 Public Speaking for Management / Supervision 3
SDP 9.538 Labor Relations Seminar: Public Sector* 3
SDP 9.537 Work, Home, and the Individual* 3
SDP 9.552 Management Information Systems 3
SDP TBA Advanced Management Seminars and Workshops, 1, 2, and 3 cr
Approved Minor 1 12

General Education Electives 2 (18 cr)

Must total at least 18 credits including any taken for Advanced Certificate in Management / Supervision.

Minimum credits required for associate degree — 90 (45 credits beyond advanced certificate)

1 Courses in the approved minor are determined with the department and are tailor- ed to the individual interest of the student. They may be selected from another college department, the general education curricula, or occupational classes taught by the participant's own organization.

2 General Education elective course are selected by the participant and are intended to meet his/her personal interests and needs. They must be taken from three or more of the following course areas: Writing and Humanities; Social Science; Communications; Health and Physical Education; Science and Mathematics. Appropriate management/supervisory experience may be evaluated for credit through examination and documentation of the quantity and quality of such experience.

* Participants wishing to enroll in these classes must have completed the 18 credit Certificate in Management / Supervision or have permission from the department.

SDP 9.500, Principles of Management / Supervision, 3 cr/hr/wk, 3 cr—Establishing a solid foundation on which to develop his or her management style is one of the most difficult problems facing today's manager / supervisor. This course provides participants with both a perspective and a real world investigation of management / supervisory responsibilities including motivation, discipline, human relations, training, communications, followership, planning, leadership, management-employee relations, and others. Because of the foundation building nature and overall perspective, it is recommended that anyone interested in management / supervisory development take this course first. Successive courses are designed to develop greater insight and skills in specific areas touched upon in the principle class.

SDP9.501, Writing for Results, 3 cr/hr/wk, 3 cr—Written communication continues one of management's most persuasive tools. Unfortunately it can also become a primary source of misunderstanding and confusion. This course seeks to provide participants with the tools and practice required for plain, precise writing. Course work pertains directly to individual writing problems: letters, memos, personnel reviews, reports, brochures, etc. Strengths and weaknesses are analyzed on an individual basis and more effective techniques are developed through practical applications.

SDP9.502, Organizational Psychology, 3 cr/hr/wk, 3 cr—The study of psychology and its relationship to organizations are critical building blocks for effective management / supervision. Participants investigate such topics as: basic motives of human behavior, learning, formation of attitudes, values, habits, overcoming anxieties and defense mechanisms, perception, effects of heredity and environment on human development, and job effectiveness as the interrelationship of both aptitude and motivation. All concepts are developed from real organizations, and participants are continually made aware of the dangers of "armchair" psychology.

SDP 9.503, Oral Communication, 3 cr/hr/wk, 3 cr—Everyday thousands of organizational problems are branded "communication breakdowns" and then ignored with the hope that they will go away. In this course participants investigate the nature of these "breakdowns" and develop the techniques and perspective to solve or at least cope with them. Topics include various forms of communications, giving and receiving feedback, barriers to communications, clarification techniques, and the importance of one and two-way communications. Course work is drawn from real life experiences and designed to provide participants with skills pertinent to their specific needs.

SDP 9.504, Training for Results, 3 cr/hr/wk, 3 cr—If education / training is to survive, it must be based on well-researched, clearly defined objectives which are directed at real needs and provide results. This course develops a realistic perspective of training as a resource for the organization and provides participants with the skills to develop and implement effective training. Topics include: the nature of learning, concept teaching, creating a motivating learning atmosphere, the place of audio-visual aids and their use, planned versus spontaneous learning, note-taking, mnemonics devices, learning curves, and learning as problem solving. Participants will test the concepts presented with classroom training assignments and will be encouraged to validate them based on their own experiences.

SDP 9.506, Human Relations, 3 cr/hr/wk, 3 cr—Human relations has often been misinterpreted as a moralistic luxury practiced when everything is running smoothly. This course seeks to put this and other myths to rest, viewing effective human relations as an economic necessity, whether times are good or bad. Participants actively investigate such topics as: leadership through mutual respect, personal integrity and the acceptance of others, evaluation without passing judgment, self-awareness and confidence, dealing with frustration, being available and concerned without being overbearing, etc. Developing pragmatic human relations solutions to real organizational problems is emphasized.

SDP 9.508, Labor-Management Relations, 3 cr/hr/wk, 3 cr—No organization today, union or non-union, can afford the luxury of ignoring labor-management relations. This course provides participants with a perspective of labor-management interactions and an insight into current labor relations events. Topics include: history and development of the labor movement, management / supervisory responsibilities for labor relations, labor unions' current status and organizational makeup, labor legislation such as the National Labor Relations Act and the Taft-Hartley Act, grievance procedures and disciplinary action, arbitration, mediation, contracts, etc. Course content is developed from real case material and is continuously reflected against current labor-management examples.

SDP 9.509, Leadership Seminar, 3 cr/hr/wk, 3 cr—Effective leadership results in accomplishment today and greater accomplishment in the future. While based on age-old, but not-so-common "common sense," the qualities and application of effective leadership are dynamic and ever changing, continually reflecting changes in leaders, followers, and circumstances. This advanced seminar provides participants with a unique opportunity to explore a variety of leadership styles in light of their current situation.
own experiences. It establishes a testing ground to check the effect of various styles on others and a low-risk atmosphere to develop alternative leadership patterns for each individual.

SDP 9.512, Work Analysis and Improvement, 3 cl hr/wk, 3 cr — The analysis of work methods and their improvement is not the sole property of the industrial engineer. In a real sense, it is the responsibility of every effective manager/supervisor whether he/she is specifically charged with it or not. This course develops a perspective of work simplification philosophies and the practical tools for both the scientific analysis and implementation of work improvements. The importance of job enrichment and the ability to effect positive change are investigated through actual on-the-job assignments.

SDP 9.514, Cost Control, 3 cl hr/wk, 3 cr — Without a solid foundation to relate costs to required resources the manager is left only with a pie-in-the-sky reasoning to secure his/her objectives for the organization. This course develops practical illustrations of cost information and provides the non-accountant participant with the basic accounting concepts necessary for relating cost information to the profit goal. Topics include: the reason for and uses of cost control, the nature of profit and its measurement, overhead, product mix, fixed costs, variable costs, time and cost standards, cost-price-volume relationships, budgeting, etc. Emphasis is on developing pragmatic approaches to real cost control problems.

SDP 9.516, Personnel Management, 3 cl hr/wk, 3 cr — The effectiveness of the personnel department is as dependent upon the managers/supervisors who use or misuse it as it is upon the personnel staff itself. Participants in this course will develop a perspective on personnel functions and skills to deal more effectively with personnel department. Topics include: manpower planning and development, job descriptions and analysis, recruitment, selection and placement programs, training programs, wages and salary administration, etc.

SDP 9.526, Minority Relations, 3 cl hr/wk, 3 cr — Legislation has made minority hiring a fact of life in every American organization. However, it has not removed the attitudinal barriers to organizational effectiveness. Prejudice, regardless of where it is directed, has never been removed by force but only through mutual understanding and hard work. This course provides the broad perspective for that understanding. It investigates the historic, social, intellectual, and economic experiences of minorities, placing emphasis on dealing with people (minorities, majorities, etc.) through understanding rather than reaction.

SDP 9.530, Creative Thinking, 3 cl hr/wk, 3 cr — Energy crisis, minimal performance, rising costs, and shrinking margins demand creativity for personal and organizational survival. Yet creativity without the "common sense" to develop workable solutions is useless. This course seeks to unlock the participants imagination, develop his/her problem solving skills, and bring tools to solve the real problems of each individual in the class. A second term of Creative Thinking (SDP 9.5111) will be offered for those students wishing additional experience in this area.

SDP 9.531, Conference Leadership, 3 cl hr/wk, 3 cr — Sound conference leadership requires good deal more than subject knowledge and public speaking skills. The leader must also be an effective manager capable of drawing on and developing the resources of all conferences. This course assists developing their roles as organizers, facilitators, controllers, summarizers, problem definers, and problem solvers. Individualized conference leading experiences allow for a pulling together of concepts from previous courses and developing new insights for the utilization of human resources.

SDP 9.534, Labor Relations Seminar: Private Sector, 3 cl hr/wk, 3 cr — The growing interdependence of management and labor and the complexity of their relations has prompted the development of an advanced labor relations seminar for those participants who have completed Labor-Management Relations, SDP 9.506. Participants will investigate labor relations skills and test them under fire in actual negotiation sessions. Topics include contract negotiation and administration, handling grievances, mediation, arbitration, etc.

SDP 9.537, Work, Home, and the Individual, 3 cl hr/wk, 3 cr — The course is designed to help participants achieve maximum satisfaction from work, from home life, and from growing as an individual. Emphasis will be placed upon integrating these three important aspects of life so that none need be neglected at the expense of another, and so that all of these functions can lead to a healthy development of each other. Once this is realized, conflicts between these three spheres of interest will diminish, leaving more psychical energy for personally satisfying living.

SDP 9.538, Labor Relations Seminar: Public Sector, 3 cl hr/wk, 3 cr — Participants will evaluate the needs and problems of public sector labor relations in general and Oregon's Public Employee's Rights and Benefits law in particular. Topics will include the can and cannot of organizing, negotiation, grievance procedures, contract administration, and the effects of and alternatives to strikes. Current public sector practices and problems will be analyzed through a highly participative approach to learning. Admission will be limited to participants who have completed Labor-Management Relations, SDP 9.508.

SDP 9.543, Alcohol and Drug Abuse in Business and Industry, 3 cl hr/wk, 3 cr — A great deal of unrealistic and incomplete information has been presented about drugs. This course puts the myths to rest and provides the manager and supervisor with knowledge rather than untruths. Participants investigate drug and alcohol abuse, the problems behind their use and misuse, who really uses drugs and alcohol, and how companies may cope with the problems that they present.

SDP 9.544, Management by Objectives, 3 cl hr/wk, 3 cr — This course investigates the practical uses, values, and problems of MBO. Participants develop company, departmental, and individual objectives and determine how to constructively implement them. Emphasis is on MBO as a tool for management rather than management as a tool for it.

SDP 9.545, Public Speaking for Management/Supervision, 3 cl hr/wk, 3 cr — The ability to organize, deliver, and defend formal presentations is essential for the complete manager/supervisor. The course provides participants with an opportunity to both develop individual job-related presentations and then test those presentations against the same sort of audience that they encounter at work. Topical coverage will include matching presentation style to audience background, fielding questions under fire, evaluating and refining delivery, reducing the barriers to audience reception, etc.

SDP 9.546, Power Reading and Thinking I, 3 cl hr/wk, 3 cr — Dramatic increases in the volume and complexity of written information have made reading skills an essential tool for today's manager/supervisor. This course not only increases reading speed, comprehension, and vocabulary but assists participants in more effectively using what they read for problem solving.

SDP 9.552, Management Information Systems, 3 cl hr/wk, 3 cr — An advanced seminar designed to develop greater perspective on quantitative skills and their role in effective management supervision. Participants will develop a working knowledge of various concepts and applications of quantitative business management information systems. Special emphasis is also placed on both understanding the role of the MIS professional and developing working relationships with him/her. Topics include: the systems approach to problem identification/solution, information and the management process, systems analysis and design, operation research, systems engineering, and a variety of other quantitative management methods and systems. The course will develop a highly interactive atmosphere by using actual organizational examples.

SDP 9.555, Organizational Structure and Implementing Planned Change, 3 cl hr/wk, 3 cr — Knowledge without skills for implementation is as useless to most organizations as is change for the sake of change. This course investigates organizational structures and presents techniques for implementing planned change that will enhance the organization rather than merely destroy it's structure. It provides managers and supervisors at all levels with a better understanding of the concepts of change and the practical skills to cope with both planned and unplanned change.

SDP 9.562, Safety Management, 3 cl hr/wk, 3 cr — Safety is more than government rules, company directives, or "fail-safe" equipment and practices. It is people and the importance they place on performing tasks safely. Contests, scare movies, pep
talks, and other expedients may have a place in a comprehensive safety program but the most important agent is still the manager/supervisor.

This course looks at the whole picture, developing perspective on such topics as: management-employee responsibilities for safety; performance errors or accidents; sales and service cost of accidents; safety planning; job safety analysis; OSHA - the good, the bad, and the ugly, making an OSHA inspection; prioritizing safety hazards, etc.

SDP 9.590, Industrial Economics, 3 cl hr/ wk, 3cr—Few would question the impact of economics on our lives, both at work and at home. Whether its influence is dealt with realistically or becomes a road block is at least in part determined by knowledge of the economic system both at home and abroad. Designed for the non-economist, participants will develop a perspective on the economic system and some of the tools used to evaluate it. Topics include: inflation, devaluation, tax structure, interest rates, supply and demand, governmental controls, spending and fiscal policy, productivity, value of money versus value of goods, the banking and federal reserve system, comparative economics of other nations, etc. Course material is based on real examples and will be tested against the effects of current economic events such as the energy crisis and the availability of raw materials.

Portland Community College offers these courses in locations throughout the PCC District. Education programs in the community are planned each quarter. For a complete schedule of subjects, times, and locations call 244-6111.

Course Numbering and Coding
General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RMS 200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact:
James Vandyke
Dean
John W. Hudson
Coordinator
Mass Media

At Portland Community College students studying for careers in mass media through programs in Commercial Art, Graphics Reproduction, Journalism, Photography, and Radio-Television Broadcasting are learning how to bridge the gaps between people. They are learning to use the arts of communication to aid understandings and to build appreciations.

Commercial Art

Job Description—Typical careers include: industrial design, textile design, package design, display design, fashion design, cartoonist, sign painter, window display, illustrator, show card, photo retouching (airbrush), technical illustration, production, typographer, mechanical art (graphic preparation).

Opportunities—Good opportunity exists for those with technical knowledge and creative ability in many types of businesses, including retailing, advertising, publications industry, and printing.

Potential Earnings—$2.20 per hour to $500 per month starting.

PCC Program—Provides opportunities for the student to develop sensitivity to design, color, texture, and composition while building skills in component abilities required of a commercial artist. Emphasis is on techniques which will equip the student with working skills and knowledge of commercial art operations. A one year certificate and a two year associate of applied science degree are offered.

One Year Certificate

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/WK Hr</th>
</tr>
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<tr>
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First Year

First Term

<table>
<thead>
<tr>
<th>Art 195</th>
<th>Basic Design 4 2</th>
</tr>
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<tbody>
<tr>
<td>Art 232</td>
<td>Commercial Illustration1 4 2</td>
</tr>
<tr>
<td>Art 291</td>
<td>Drawing 4 2 2</td>
</tr>
<tr>
<td>Art 2324</td>
<td>Introduction to Commercial Art 4 2</td>
</tr>
<tr>
<td>Art 2315</td>
<td>Advertising Lettering 4 2</td>
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<td>Art 292</td>
<td>Water Color 4 2 2</td>
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<td></td>
<td>Electives 3 3</td>
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Second Term

<table>
<thead>
<tr>
<th>Art 196</th>
<th>Basic Design 4 2</th>
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<tbody>
<tr>
<td>Art 291</td>
<td>Drawing 4 2 2</td>
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<tr>
<td>Drf 4127</td>
<td>Technical Art Typing 2 6 5</td>
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<tr>
<td>Art 2344</td>
<td>Commercial IllustrationII 4 2</td>
</tr>
<tr>
<td>Art 2316</td>
<td>Advertising Layout (Prerequisite: Art 291, Art 2316) 4 2</td>
</tr>
<tr>
<td>Gra 4135</td>
<td>Airbrush IllustrationI 4 2</td>
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<td></td>
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Third Term

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<tr>
<th>Art 197</th>
<th>Basic Design 4 2</th>
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<tbody>
<tr>
<td>Art 291</td>
<td>Drawing-Life and Figure Composition 6 3 3</td>
</tr>
<tr>
<td>Art 2336</td>
<td>Commercial IllustrationI 4 2</td>
</tr>
<tr>
<td>Drf 4128</td>
<td>Technical Art IllustrationII 2 6 5</td>
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<tr>
<td></td>
<td>Select One Below 1 2</td>
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<td></td>
<td>Electives 3 3</td>
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<td>Totals 17</td>
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Minimum credits required for certificate—50

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<tr>
<th>Two Year Associate of Applied Science Degree</th>
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<tbody>
<tr>
<td>Dept Crs No Course Title Class/Lab Cr Hrs/WK Hr</td>
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Second Year

Fourth Term

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<tr>
<th>Art 2325</th>
<th>Commercial ArtI (Prerequisite: Art 2.317) 4 2</th>
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</thead>
<tbody>
<tr>
<td>Art 290</td>
<td>Painting 4 2 2</td>
</tr>
<tr>
<td>Pho 4100</td>
<td>PhotographyI 2 6 4</td>
</tr>
<tr>
<td>Gra 4320</td>
<td>Introduction to Copy FittingI 2 2 2</td>
</tr>
<tr>
<td>Gra 4314</td>
<td>Introduction to Camera Stripping and Platemaking 2 2 2</td>
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<td>Select One Below 4 2</td>
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<td>Electives 3 3</td>
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Fifth Term

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<tr>
<th>Art 2326</th>
<th>Commercial ArtII 4 2</th>
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<tr>
<td>Art 290</td>
<td>Painting-Life and Figure Composition 6 3 3</td>
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<tr>
<td>Art 2330</td>
<td>Visual Composition 6 3</td>
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<td>Select One Below 4 2</td>
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<td>Media Choice 2 (min.).4</td>
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Sixth Term

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<tr>
<th>Art 2327</th>
<th>Commercial ArtIII 4 2</th>
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<tr>
<td>Art 290</td>
<td>Painting 4 2 2</td>
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<tr>
<td>Art 2328</td>
<td>Advanced Studio 8 4</td>
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<td>Select One Below 4 2</td>
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<td>Media Choice 2 (min.).4</td>
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<td></td>
<td>Electives 3 3</td>
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<td></td>
<td>Totals 17</td>
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</tbody>
</table>

Minimum credits required for associate degree—101

1 Select One

<table>
<thead>
<tr>
<th>Gra 4136</th>
<th>Airbrush IllustrationII 4 2</th>
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<tbody>
<tr>
<td>Art 292</td>
<td>Water Color 4 2 2</td>
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2 Media Choice

<table>
<thead>
<tr>
<th>Gra 4322</th>
<th>Copy FittingII 6 6 6</th>
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<tbody>
<tr>
<td>Gra 4324</td>
<td>Copy FittingIII 6 6 6</td>
</tr>
<tr>
<td>Pho 4102</td>
<td>PhotographyI 2 6 4</td>
</tr>
<tr>
<td>Pho 4104</td>
<td>PhotographyIII 2 6 4</td>
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</table>

3 Recommended Electives

<table>
<thead>
<tr>
<th>Wr 1.101</th>
<th>Communication Skills 3 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 2316</td>
<td>Advertising Copy Writing 2 2 3</td>
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<tr>
<td>J 226</td>
<td>Introduction to Journalism 2 2</td>
</tr>
<tr>
<td>Sp 100</td>
<td>Basic Communications 3 3</td>
</tr>
<tr>
<td>Sp 111</td>
<td>Fundamentals of Speech 3 3</td>
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</tbody>
</table>

BA 101 Introduction to Business 4 4
Mth 4.200 Basic Mathematics 4 4
Bus 2.303 Fundamentals of Advertising 3 3
SS 121 Typing 5 2
Psy 1.546 Psychology and Human Relations 3 3
Bus 2.307 Basic Salesmanship 3 3

4 Select One

<table>
<thead>
<tr>
<th>Art 2.337</th>
<th>Fashion Illustration 4 2</th>
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<tbody>
<tr>
<td>Art 2.341</td>
<td>Story Illustration 4 2</td>
</tr>
<tr>
<td>Art 2.345</td>
<td>Cartooning 4 2</td>
</tr>
<tr>
<td>Art 2.349</td>
<td>Portrait Drawing 4 2</td>
</tr>
<tr>
<td>Art 2.350</td>
<td>Portrait Painting 4 2</td>
</tr>
<tr>
<td>Art 217</td>
<td>Lettering (Calligraphy) 3 1</td>
</tr>
<tr>
<td>Art 2.308</td>
<td>Showcard Lettering 2.309, and Sign 2.310</td>
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<tr>
<td>Painting 4 2</td>
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Recommended Related Subjects

<table>
<thead>
<tr>
<th>Gra 4.370</th>
<th>Introduction to Screen Printing 2 2 2</th>
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<tbody>
<tr>
<td>Gra 4.305</td>
<td>Papers and Inks 2 2</td>
</tr>
<tr>
<td>Gra 4.306</td>
<td>Introduction to Offset Press 6 6 6</td>
</tr>
<tr>
<td>Art 204</td>
<td>History of Western Art 3 3</td>
</tr>
<tr>
<td>Drf 4.130</td>
<td>Technical Art Illustration III 2 6 5</td>
</tr>
<tr>
<td>Drf 4.131</td>
<td>Technical Art Illustration IV 2 6 5</td>
</tr>
<tr>
<td>Art 195, 196, 197 (T), Basic Design, 4 cl/hr/ wk, 2 cr—Basic Design is a beginning course in art. Emphasis is placed on identifying design problems and developing strategies to solve these problems. The student will work on various projects which will engage him/her in creative processes. Materials, techniques, vocabulary, and ideas are presented to the student as tools through which he/she makes decisions concerning approach to two and three dimensional design problems.</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Student will solve a series of imaginative graphic design problems.</td>
</tr>
<tr>
<td>Winter</td>
<td>Student will work on problems dealing with colors. He/she will be directed to see differences and similarities of colors.</td>
</tr>
<tr>
<td>Spring</td>
<td>Student will work with instructor to develop design projects.</td>
</tr>
<tr>
<td>Art 204, 205, 206 (T), History of Western Art, 3 cl/hr/wk, 3 cr—Using the basic history of art as a reflection of man's interaction with his environment, the student will explore, view, evaluate, and react to many art forms.</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Ancient art, Greek, Roman art.</td>
</tr>
<tr>
<td>Winter</td>
<td>Early Christian, Medieval, Renaissance, Baroque art.</td>
</tr>
<tr>
<td>Spring</td>
<td>19th, 20th century art.</td>
</tr>
<tr>
<td>Art 217 (T), Lettering (Calligraphy), 3 lab hr/wk, 1 cr—The student will study and demonstrate lettering principles, techniques, and functions; he/she will discuss the traditions and the historical developments of the letters.</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>The italic alphabet, lower and upper case. If class development warrants, blackletter and/or unicilal is introduced. By the</td>
</tr>
</tbody>
</table>
The Roman alphabet, lower and uppercase is taught. Secondary alphabets studied are Egyptian and flat pen angle lowercase Roman.

Art 290 (T), Painting, 4cl, 2 lab hr/wk, 2 cr; Life and Figure Composition, 6cl, 3 lab hr/wk, 3 cr—Painting: The student will study and demonstrate the process of painting; he/she will examine the nature of painting materials and the concepts which apply to growth as a painter. Subject matter may include human figure, still-life, landscape, and imaginative material.

Art 291 (T), Drawing, 4cl, 2 lab hr/wk, 2 cr; Life and Figure Composition, 6cl, 3 lab hr/wk, 3 cr—Drawing: The student will discuss and apply useful ideas for drawing. Under the guidance of the instructor, the student will be encouraged to freely explore ideas, materials, and techniques used in drawing. Subject matter may include human figure, still-life, landscape, and imaginative materials.

Art 292 (T), Water Color, 4cl, 2 lab hr/wk, 2 cr—The student will study and demonstrate technique and use of water color with special attention to its characteristics as a painting medium. Primary emphasis is on landscape material. PCC accepts a total of six transfer credits for Art 292.

Art 2.315, Advertising Lettering, 4 lab hr/wk, 2 cr—An introduction to lettering and type indication skills. Students will learn a structural alphabet, basic type families, variations of type faces, type indication techniques. They will execute several projects using type as the design element.

Art 2.316, Advertising Layout II, 4 lab hr/wk, 2 cr—The student will learn fundamentals of layout, composition, lettering, typography, production, reader interest, and product image with related studio projects emphasizing point-of-sale advertising and design. He/she will make roughs and dummies of ideas. Prerequisite: Art 2.315.

Art 2.324, Introduction to Commercial Art, 4 lab hr/wk, 2 cr—This course is designed to acquaint commercial art students with the employment possibilities open to them in advertising and graphic reproduction. Special attention is given to the production of the advertising message for mass media and assisting students to find a direction in their career goals.

Art 2.325, 2.326, 2.327, Commercial Art I, II, III, 4 lab hr/wk, 2 cr—The student will develop skill and understanding in studio practices, designing, production methods, and techniques through designing packages, newspaper and magazine advertisements, television graphics, point of purchase advertisements, etc. for mass media through experience in a studio workshop in graphic design. Part of a structured curriculum designed to prepare for entry into the field of graphic design.

Art 2.328, Advanced Studio, 8 lab hr/wk, 4 cr—This course is designed to help the student assess his/her skill, knowledge, and work habits and to give student a realistic picture of employability. He/she will work out, with instructional help, a program of self-improvement based on the results of his/her own self-evaluation and employment objectives. The student will concentrate on developing his/her skill in a specific area. Prerequisites: Course to be taken during the student's final school term.

Art 2.330, Visual Composition, 6 lab hr/wk, 3 cr—The student will develop skill and understanding of the fundamentals of applied commercial art through experience in a studio workshop in visual composition. The student will study the physical and psychological application of light, space, and mass scale and other basic elements of art to advanced problems in design and composition. Part of a structured curriculum designed to prepare for entry into the field of graphic design.

Art 2.332, 2.334, 2.336, Commercial Illustration I, II, III, 4 lab hr/wk, 2 cr—Commercial Illustration is a studio course designed to introduce the student to the field of fashion illustration. Projects will include drawing from live models, designing magazine and newspaper fashion advertisements, and learning fashion rendering techniques.

Art 2.341, Story Illustration, 4 lab hr/wk, 2 cr—A sequence of applied studies in story illustration including magazine illustration black, white and color, book jacket and children's books. Emphasis is placed on the emotional power of the illustration and on involving the viewer in the story.

Art 2.345, Cartooning, 4 lab hr/wk, 2 cr—an introduction to the cartooning field. Students will study facial expressions and body gestures in cartoon characters and will be introduced to editorial and political cartooning and the use of cartoons in advertising.

Art 2.349, Portrait Drawing, 4 lab hr/wk, 2 cr—Fundamental concepts of portrait drawing. Students will study basic proportions, bone and muscle structure, facial expressions, the points and garments. Drawing will be from live models, studying black and white and wash rendering techniques.

Art 2.350, Portrait Painting, 4 lab hr/wk, 2 cr—This course is designed to introduce the commercial art student to the skills required in portraiture of the commercial artist. Students will study the organization of space, light, and color and will examine materials, techniques, style, and visual content as they are used in portrait composition.

Art 4.127, Technical Art Illustration I, 2 cl, 6 lab hr/wk, 5 cr—The student will learn the basic elements of axonometric drawing, angular and parallel perspective and will demonstrate his/her understanding by preparing pictorials of such products as furniture, hardware, jewelry, etc. The student will learn the correct use, versatility, and care of common drawing instruments.

Art 4.128, Technical Art Illustration II, 2 cl, 6 lab hr/wk, 5 cr—Working with a thorough understanding of angular and parallel perspective, the student will demonstrate his/her knowledge by rendering interior and exterior drawings in black and white and full color suitable for reproduction.

Art 4.130, Technical Art Illustration III, 2 cl, 6 lab hr/wk, 5 cr—The student will demonstrate a comprehension of trimetric and perspective drawings as used in industry for catalogs, sales, repair and training manuals. He/she will learn the use of inking and shading techniques.

Art 4.131, Technical Art Illustration IV, 2 cl, 6 lab hr/wk, 5 cr—The student will gain knowledge and experience needed to prepare pictorials and layouts for reproduction by multithin and other commercial printing methods. He/she will demonstrate this knowledge by preparing a portfolio containing samples of completed illustrations needed for job applications.

Art 4.135, 4.136, Airbrush Illustration I, II, 4 lab hr/wk, 2 cr—A basic course in the care, function, and manipulation of the airbrush. The student will learn the techn-
niques and procedures necessary to apply airbrush illustration in photo retouching and continuous tone rendering.

Graphics Reproduction

Job Description—In copy preparation the technician places type lines, does layout work, uses color, and knows most effective way to present communication of ideas. Technician must have knowledge of hot and cold type composition systems and principles, will operate letterpress and offset machinery, will maintain equipment, will use process camera and do stripping and platemaking. Technician should have knowledge of chemicals and processes used in modern reproduction.

Opportunities—Job picture usually good. Once experienced, employment is available in most sections of the country with commercial printers, newspapers, advertising agencies, etc.

Potential Earnings—$2.20 per hour starting; $10,000 to $12,000 per year high.

PCC Program—Graphics Reproduction is a three term to six term program which has been divided into three basic options to give students job entry skills in a particular phase of graphics reproduction.

The first term of all three options is the same. This term will give the student a broad understanding of the graphics industry. With the help of his/her instructor or advisor, the student will select the areas of graphic reproduction best suited to his/her interests and abilities. After completion of the first introductory twelve weeks, he/she will select one of three options for more concentrated study and training. The program emphasizes development of manual skills and understanding of the technical aspects.

A one year certificate is awarded at the completion of three terms, and a two year associate of applied science degree is conferred at the successful completion of six terms.

Option I

Camera, Stripping, and Platemaking

One Year Certificate

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<th>Dept Crs</th>
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<td>Gra 4.300</td>
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Second Term

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Minimum number of credits required for certificate — 51

Two Year Associate of Applied Science Degree

Second Year

Fourth Term

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Minimum number of credits required for associate degree — 101

Option II

Copy Fitting

One Year Certificate

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Minimum number of credits required for associate degree — 102
Option III
Offset Press

One Year Certificate

First Year

First Term
Gra 4.300 Introduction to Graphics Reproduction 2 2
Gra 4.320 Copy Fitting I 2 2 2
Gra 4.314 Introduction to Camera Stripping, Platemaking I 2 2 2
Gra 4.308 Introduction to Offset Press Operation I 2 2 2
Gra 4.330 Introduction to Typography and Letterpress Printing I 2 2 2
Mth 4.200 Basic Mathematics 5 4
General Education Elective* 3 3
Totals 18 18 1 17

Second Term
Gra 4.310 Offset Press Operation II 6 6 6
Gra 4.332 Typography and Letterpress Printing II 6 6 6
Gra 4.316 Camera Stripping, Platemaking II 6 6 6
Totals 18 18 18

Third Term
Gra 4.312 Offset Press Operation III 6 6 6
Gra 4.334 Typography and Letterpress Printing III 6 6 6
Gra 4.306 Papers and Inks 2 2
General Education Elective* 3 3
Totals 17 17 12 17

Minimum number of credits required for certificate — 52

Two Year Associate of Applied Science Degree

Second Year

Fourth Term
Gra 4.360 Offset Press Operation IV 6 6 6
Gra 4.304 Production Standards 2 2
Gra 4.370 Introduction to Screen Printing I 2 2 2
General Education Elective* 6 6
Totals 16 8 16

Fifth Term
Gra 4.362 Offset Press Operation V 6 6 6
Gra 4.372 Screen Printing II 6 6 6
Gra 4.307 Cost Analysis 2 2
General Education Elective* 3 3
Totals 17 12 17

Sixth Term
Gra 4.364 Offset Press Operation VI 6 6 6
Gra 4.374 Screen Printing III 6 6 6
Gra 4.306 Pricing and Estimating 2 2
General Education Elective* 3 3
Totals 17 12 17

Minimum number of credits required for associate degree — 102

*General Education Requirement
As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his associate of applied science degree program from three or more of the following course areas:
—Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
—Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
—Communication courses (Writing, Speech)
—Health and Physical Education courses
—Science and Mathematics courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

Recommended Electives
Vwr 1.102 Communication Skills
Psy 1.546 Psychology and Human Relations
BA 1.101 Introduction to Business
Sp 1.100 Basic Communications
Art 2.308, 2.309, 2.310 Shadow Lettering and Sign Painting
Bus 2.303 Fundamentals of Advertising
Ph 1.100 Photography
Art 1.217 Lettering
Art 2.291 Drawing
Art 2.330 Visual Composition
Art 2.332, 2.334, 2.336 Commercial Illustration
CVVP 9.250 Cooperative Work Experience

Gra 4.300, Introduction to Graphics Reproduction, 2 cl hr/wk, 2 cr — The student will study and discuss various printing processes and their uses in industry, personal work habits, employer-employee attitudes and responsibilities, safety measures, new techniques and developments, and ethics of the trade. By producing and distributing graphic materials, the student is acquainted with job opportunities in graphic reproduction.

Gra 4.304, Production Standards, 2 cl hr/wk, 2 cr — The student will learn to coordinate technical knowledge with managerial principles of efficiency and control. The primary purpose of the course is to develop principles of planning and the maintenance of controlled efficiency. The student will be introduced to inventory planning and work measurement. A work flow chart will be designed to better understand the importance of standard operating procedures.

Gra 4.305, Papers and Inks, 2 cl hr/wk, 2 cr — The student will study and discuss the basics of paper making, the uses of various papers in the industry, inks, and the variables concerning paper and paper products.

Gra 4.306, Pricing and Estimating, 2 cl hr/wk, 2 cr — The student will study and discuss the elements of production and distribution of materials which contribute to total cost. He/she will demonstrate estimating and pricing practices for the implant or captive shop, trade shop, and the commercial printer.

Gra 4.307, Cost Analysis, 2 cl hr/wk, 2 cr — The student will learn the basic principles of prorated costing systems and the application of estimating charts to the costing system. He/she will be given practical work in calculating the time it takes to do the job and the cost incurred by the printer. The Par System and the Franklin Cost System, methods of cost reduction through proper selection of process, materials, and improved production practices, will be discussed.

Gra 4.308, Introduction to Offset Press Operation I, 2 cl, 2 lab hr/wk, 2 cr — The student will be given practical experience in the operation of offset presses. He/she will develop skills in registration, sheet control, printing both sides of a sheet, ink mixing, plate and blanket packing, and multicolor register. Advance press problems and solutions are discussed to make the student aware of situations often encountered in the industry.

Gra 4.314, Introduction to Camera Stripping, Platemaking I, 2 cl 2 lab hr/wk, 2 cr, Gra 4.316, 4.318, Camera Stripping, Platemaking II, III, IV, VI, 6 cl, 6 lab hr/wk, 6 cr — The student will develop job entry skills in camera stripping and platemaking. In camera stripping the student should have prior knowledge of the principles of photography camera operation and care, processing, and films. He/she will demonstrate special handling of advance line work, principles of halftones and filters, duotones, photo composing, stripping techniques, a working knowledge of various types of layouts, the use of screen tints, register techniques, and the stripping of multiple forms.

Gra 4.320, Introduction to Copy Fitting I, 2 cl, 2 lab hr/wk, 2 cr, Gra 4.322, 4.324, 4.326, 4.327, 4.328, Copy Fitting II, III, IV, VI, VII, 6 cl, 6 lab hr/wk, 6 cr — The student will study and discuss hot type, type styles, faces and sizes, tools, layout and design, ruled forms, cold typesetting, paste-up, and proofreading. He/she will develop skills in cold typesetting equipment, layout and design, and paste-up procedures. An
opportunity for advance work in layout and design, cold typesetting, use of hot type proofs, skill in typing, and advanced paste-up procedures are provided.

Gra 4.330, Introduction to Typography I and Letterpress Printing I, 2cr, 2lab/hr/wk, 6cr
Gra 4.332, 4.344, Typography and Letterpress II, III, 4cl, 6lab/hr/wk, 6cr

The student will study and discuss type design, the terms related to type composing and printing, methods and procedures for handling type and printing, and the different applications in the field of book, magazine, and newspaper publishing and advertising. He/she will demonstrate methods in using the printers point system, pica measurement, copy fitting, proofreading, and marking copy in industrial problems. The student will also learn how to select type designs that will effectively present and communicate the printed message.

The student will learn the fundamental techniques of type preparation, printing stock preparation, press inking, line-up of the impressions, automatic feeding methods, the evaluation and control of printing quality, and maintenance and safety practices. He/she will apply letterpress techniques to the industrial areas of advertising in commercial shops, in-plant print shops, newspaper publishing, and magazines and book publishing.

Gra 4.350, Camera Stripping, Platemaking IV, 4cl, 6lab/hr/wk, 6cr
Gra 4.352, Camera Stripping, Platemaking V, 6cl, 6lab/hr/wk, 6cr
Gra 4.354, Camera Stripping, Platemaking VI, 6cl, 6lab/hr/wk, 6cr

The student will demonstrate basic techniques with densitometry, sensibility, filter factors, films, and color reproduction, and advance stripping and platemaking for close register work.

Gra 4.370, Introduction to Screen Printing I, 2cl, 2lab/hr/wk, 2cr
Gra 4.372, Screen Printing II, 6cl, 6lab/hr/wk, 6cr
Gra 4.374, Screen Printing III, 6cl, 6lab/hr/wk, 6cr

The student will learn the fundamentals of screen printing on textiles and with flocking and applying the designs to surfaces that are cylindrical, contoured, or in relief.

Art 4.318, 4.319, 4.320, Graphic Layout, 2 cl, 4lab/hr/wk, 3cr—A study of design and composition as applied to printing. The student will develop abstract layouts, roughs, overlays, and comprehensives for all areas of visual communication. Upon completion of the three terms the student will have knowledge and skills related to designing printed material necessary for an entry-level job in this phase of the graphic industry.

CWP 9.250, Cooperative Work Experience, 1cl, 15lab/hr/wk, 3cr—The student will participate in a supervised laboratory and seminar activity, learning to apply to the actual working world the knowledge and skills acquired in the Graphics Reproduction program. May be used in place of required courses with department approval.

Gra 4.135, Airbrush Illustration, 4 lab/hr/ wk, 2cr—A basic course in the care, function, and manipulation of the airbrush. The student will learn the techniques and procedures necessary to apply airbrush illustration in photo retouching and continuous tonerendering.

Journalism

Job Description—The journalist makes contacts, conducts research, writes copy for newspapers, industrial publications, radio and television, business, organizations, and trade publications. Hours may be irregular; activities are varied, and schedules can be demanding.

Opportunities—Good.

Potential Earnings—Starting salaries on weekly and small daily newspapers in Oregon range between $115 and $215 per week. After completing a four year college program and experience on a weekly or small daily, journalists may move on to a metropolitan daily where salaries start at $2000 a week.

PCC Program—Specialty courses and on the job experience with the college newspaper, The Bridge, are offered. Credits are transferable to four year colleges or universities; however, many journalism students have found employment with an associate of arts or of science degree. The student will be introduced to the many fields of specialty writing and will write news and editorials for the college newspaper, The Bridge. J 215 required concurrently.

J 218 (T), Copy Editing and Makeup, 2 cl/hr/wk, 2 cr—The student will learn copy, edit, write headlines, proofs, and layout newspapers with practical experience in all fields. He/she will learn to pass judgment on libelous material and on newsworthiness of copy for publication in The Bridge. J 215 required concurrently.

J 224, 225, 226 (T), Introduction to Journalism, 2 cl/hr/wk, 2 cr—The student will study and discuss history and procedures of communication media. Recommended for prejournalism majors—open to non-majors. He/she will discuss techniques in various fields of news, advertising, public relations, and trade publications.

Fall: Newscontent and editorial functions.
Winter: Advertising and public relations.
Spring: Production methods. Terms need not be taken in sequence.

Photography

Job Description—The photographer takes pictures of people, places, and still life for businesses, personal clients, and industries. Photography offers a great deal of variety and irregular hours. The photographer must have skill and knowledge of a wide assortment of cameras, lenses, lights, and lab equipment. Manual dexterity and artistic ability are important assets.

Opportunities—Generally good; commercial photography field crowded but increasing opportunities in industrial photography.

Potential Earnings—Information is limited. Printers, laboratory technicians — $75 to $125 per week. Photographers — $90 to $100 per week starting — $14,000 high.

PCC Program—PCC offers specialty courses in photography to help develop job entry skills.

Pho 4.100, Photography, 2 cl, 6lab/hr/wk, 4 cr—This course is for journalism students who wish to gain additional experience in writing, editing, and newspaper promotion on The Bridge after completing their work in journalism classes. A maximum of three credit hours may be taken under the J 215 designation.

J 216 (T), Reporting I, 2cl/hr/wk, 2cr—The student will learn the fundamentals of reporting, including the gathering and writing of news for publication in newspapers. Emphasis is on accuracy, clarity of writing, and standards required by newspapers. J 215 required concurrently.

J 217 (T), Reporting II, 2 cl/hr/wk, 2 cr—The student will learn accurate reporting and objective standards in writing news, editorials, and feature articles. Course stresses reader appeal in writing and methods of gathering and assembling data in multi-fact stories. The student will be introduced to the many fields of specialty writing and will write news and editorials for the college newspaper, The Bridge. J 215 required concurrently.

J 218 (T), Copy Editing and Makeup, 2 cl/hr/wk, 2 cr—The student will learn copy, edit, write headlines, proofs, and layout newspapers with practical experience in all fields. He/she will learn to pass judgment on libelous matter and on newsworthiness of copy for publication in The Bridge. J 215 required concurrently.

J 224, 225, 226 (T), Introduction to Journalism, 2 cl/hr/wk, 2 cr—The student will study and discuss history and procedures of communication media. Recommended for prejournalism majors—open to non-majors. He/she will discuss techniques in various fields of news, advertising, public relations, and trade publications.

Fall: Newscontent and editorial functions.
Winter: Advertising and public relations.
Spring: Production methods. Terms need not be taken in sequence.
Radio Television Broadcasting

Job Description—Many different kinds of jobs are available in the industry including radio and television advertising, radio and television writing, and public relations. Opportunities are good as fields expand; however, background and training are becoming more necessary to enter the industry.

Potential Earnings—Average $600 per month starting.

PCC Program—The two-year associate of applied science degree program consists of a first-year core program with two second-year options: Radio Broadcasting Technician for those who are interested in announcing, production, or advertising sales for radio and Television Production Technician for those who wish to enter the field of announcing, production, or advertising sales in the television industry.

### Core Program

<table>
<thead>
<tr>
<th>Dept Crs No</th>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wr 1.101</td>
<td>Communication Skills I or II</td>
<td>3 3</td>
</tr>
<tr>
<td>Wr 111</td>
<td>English Composition</td>
<td>3 3</td>
</tr>
<tr>
<td>SS 121</td>
<td>Typing I</td>
<td>5 2</td>
</tr>
<tr>
<td>Sp 111</td>
<td>Fundamentals of Speech</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.371</td>
<td>Broadcasting I</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.372</td>
<td>Broadcasting Lab I</td>
<td>9 9</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>9 16</td>
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### Second Term

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
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<tbody>
<tr>
<td>Wr 1.102 Communications Skills I or II</td>
<td>3 3</td>
</tr>
<tr>
<td>Wr 112 English Composition</td>
<td>3 3</td>
</tr>
<tr>
<td>SS 123 Typing III</td>
<td>5 2</td>
</tr>
<tr>
<td>Bus 2.303 Fundamentals of Advertising</td>
<td>3 3</td>
</tr>
<tr>
<td>Bus 2.304 Fundamentals of Marketing</td>
<td>3 3</td>
</tr>
<tr>
<td>Sp 229 Oral Interpretation</td>
<td>3 2</td>
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<tr>
<td>RT 3.362 Radio-TV Station Organization</td>
<td>3 3</td>
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<td><strong>Totals</strong></td>
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### Third Term

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<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
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<tbody>
<tr>
<td>Bus 2.307 Salesmanship</td>
<td>3 3</td>
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<tr>
<td>Ps 1.600 American Institutions</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.364 Writing for Radio and Television</td>
<td>3 3</td>
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<tr>
<td>RT 3.360 Radio-TV Traffic</td>
<td>3 3</td>
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<td>*<em>Elective</em></td>
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<td><strong>Totals</strong></td>
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### Fourth Term

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<thead>
<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
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<tbody>
<tr>
<td>RT 3.373 Radio-Telephone Operators Preparation I</td>
<td>4 2</td>
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<tr>
<td>RT 3.375 Broadcasting Lab II</td>
<td>9 9</td>
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<tr>
<td>RT 3.390 Newsroom I</td>
<td>3 3</td>
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### Fifth Term

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<tr>
<td>RT 3.375 Broadcasting III</td>
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<tr>
<td>RT 3.376 Broadcasting Lab II</td>
<td>9 9</td>
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<tr>
<td>RT 3.365 Newsroom II</td>
<td>3 3</td>
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<tr>
<td>Psy 1.546 Psychology and Human Relations</td>
<td>3 3</td>
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### Sixth Term

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<tr>
<th>Course Title</th>
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<tbody>
<tr>
<td>RT 3.377 Broadcasting IV</td>
<td>3 3</td>
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<tr>
<td>RT 3.378 Broadcasting Lab IV</td>
<td>9 9</td>
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<tr>
<td>Wr 6.126 Report Writing</td>
<td>3 3</td>
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<tr>
<td>Ec 1.506 Applied Economics</td>
<td>3 3</td>
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<td><strong>Totals</strong></td>
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</tbody>
</table>

Minimum credits required for associate degree—97

### Option II: Television Production Technician

Designed for those who want to enter the field of television announcing, production, or advertising sales. Prerequisite: Successful completion of first-year course of study.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
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<tbody>
<tr>
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<td>3 3</td>
</tr>
<tr>
<td>RT 3.381 Television Lab I</td>
<td>9 5</td>
</tr>
<tr>
<td>RT 3.390 Newsroom I</td>
<td>3 3</td>
</tr>
<tr>
<td>*<em>Elective</em></td>
<td>5 5</td>
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<tr>
<td><strong>Totals</strong></td>
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</tbody>
</table>

### Option III: Radio Broadcasting Technician

Designed for those who want to enter the field of radio announcing, production, or advertising sales. Prerequisite: Successful completion of first-year course of study.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT 3.382 Television II</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.383 Television Lab II</td>
<td>9 5</td>
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<tr>
<td>RT 3.385 Newsroom II</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.397 Visual Communications</td>
<td>3 3</td>
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<td>*<em>Elective</em></td>
<td>2 2</td>
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<td><strong>Totals</strong></td>
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Minimum credits required for associate degree—95

*Recommended General Education Electives

<table>
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<tr>
<th>Course Title</th>
<th>Class/Lab Cr Hrs/Wk Hr</th>
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<tbody>
<tr>
<td>Bus 2.215 Buying</td>
<td>3 3</td>
</tr>
<tr>
<td>Bus 2.305 Principles of Retailing</td>
<td>3 3</td>
</tr>
<tr>
<td>Ta 111 Fundamentals of Acting</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.371A Broadcasting I (Special summer session)</td>
<td>3 3</td>
</tr>
<tr>
<td>RT 3.372A Broadcasting Lab I (Special summer session)</td>
<td>3 3</td>
</tr>
</tbody>
</table>

### Option IV: Writing for Radio and Television

3cl hr/wk, 3 cr—The student will study the differences between the two (e.g., imagery with words is emphasized in radio writing while the coordinating of words with visual communications is emphasized in television writing). The student will write different types of material for radio and television such as...
promotions, commercials, public service announcements, and be familiar with regular commercial program formats.

RT 3.365, Newsroom II, 3 cl hr/wk, 3 cr
This course of study is a continuation of Newsroom I to further sharpen the student's writing and voice techniques. The student will be introduced to the finer points of producing for editing and directing programs. The student will learn the finer points of producing for editing and directing to content through study of professional production and application to local work. All phases of production will be studied as the student tailors lab work to career goals.

RT 3.382, Television II, 3 cl hr/wk, 3 cr
RT 3.383, Television Lab II, 9 lab hr/wk, 4 cr
A continuation of Television I with the emphasis on basic production skills through extensive production of college oriented television materials and individual projects. Students are encouraged to tailor project work to appropriate career goals. On-camera talent work will coordinate with other television broadcast courses for greater exposure.

RT 3.384, Television III, 3 cl hr/wk, 3 cr
RT 3.385, Television Lab III, 9 lab hr/wk, 5 cr
More advanced study of television production with emphasis on producing and directing programs. The student will learn the finer points of producing for editing and directing to content through study of professional production and application to local work. All phases of production will be studied as the student tailors lab work to career goals.

RT 3.390, Newsroom I, 3 cl hr/wk, 3 cr
The student will learn the fundamentals of radio-television programming: news, sports, community service, documentaries, entertainment and be able to write, coordinate, and develop all of these into airable programs.

RT 3.397, Visual Communications, 3 cl hr/wk, 3 cr
The student will study fundamentals of photography, picture taking, developing, printing. Emphasis is on effectiveness of non-verbal, implied communication in newspapers, television, advertising, billboards, magazines. He/she will be introduced to cinematography.

RT 3.738, Radio-Television Operators Preparation I, 4 cl hr/wk, 2 cr (six week session)—The student will study the FCC rules and regulations and the typical questions and answers used in the FCC Third Class Radio Telephone Operator's Permit Examination.

Portland Community College offers classes in this subject area in locations throughout the community such as Camera Repair and Maintenance, Photography, Darkroom Photography, Photography for Fun, Calligraphy, Drawing, Painting, Painting Acrylics, Painting Acrylics and Oils, Painting for Children, Silk Screen, and Lettering. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding
General studies courses are designated by a two- or three-digit number (e.g. Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
Nursing

A licensed nurse has successfully completed a prescribed course of study and has satisfactorily passed a national licensing examination. Four types of nursing education programs prepare nurses for licensure. Students prepare for licensure as practical nurses in a one-year program, take the National Practical Nurse Examination and, upon successful completion, are entitled to use the letters L.P.N. (Licensed Practical Nurse) as identification.

Three programs prepare for registered nurse (RN) licensure. They are a two-year program leading to an associate degree (ADN), a three-year program presenting a diploma, and a four-year program culminating in a baccalaureate degree (BSN).

Due to an increasing interest in all health service careers, Portland Community College offers more applications for facilities than can accommodate. Also, because certain skills and abilities are required by the health professions, some entrance requirements and admission procedures have been established.

Opening date for applying for admission to any health service program is January 1, except for Medical Laboratory Technology, which accepts applications at any time. Information on additional admission procedures will be forwarded to each applicant upon receipt of his or her inquiry or application. Inquiries should be directed to: Health Professions Admissions Office, Portland Community College, 12000 S.W. 49th Avenue, Portland, Oregon 97219, phone 244-6111.

Due to the unique responsibilities involved in the practice of clinical laboratory sciences in the health professions programs, each individual program reserves the right to require that a student who appears unsuitable for a program be counseled into another area of study at the college.

Job Description—Nursing is described by the Oregon Nurse Practice Act.

"Practice of nursing" means diagnosing and treating human responses to actual or potential health problems through such services as identification thereof, health teaching, health counseling, and providing care supportive to or restorative of life and well-being and including the performance of such additional services required to cure or to control the disease or incapacity of the patient. Nursing care is provided by and the responsibilities of the registered nurse are directed by licensed practical nurses licensed to practice in the state of Oregon.

"Practice of registered nursing" means the application of knowledge drawn from broad, in-depth education in the social and physical sciences in assessing, planning, ordering, giving, delegating, teaching, and supervising care which promotes the person's optimum health and independence.

"Excerpt from Oregon law, ORS 678.010 to 678.360.

Opportunities—Employment is available in a variety of health care facilities (hospital, clinics, extended care, community health, etc.). Nurses are needed 24 hours a day, seven days a week. Job opportunities are good but affected by economic conditions in an area.


PCC Program—Portland Community College offers two preparatory programs for licensure, one for the practical nurse with a certificate and one for the registered nurse with an associate degree. Both programs prepare graduates to deliver nursing services under professional direction. Upon completion of the program, the student is eligible to take the State Board Test Pool Examination for the course of studies completed. Successfully passing the examination for the specific program entitles the graduate to practice as a Licensed Practical Nurse (LPN) or Registered Nurse.

The first three terms cover the common core of nursing which is built on the basic needs of people, science principles, communication, and nursing care skills. From this core, the student progresses either to the practical nurse role in the fourth term or to more complex care components required of the registered nurse in the second year.

Due to limited clinical learning experiences available in the local hospitals, some students will be asked to complete the Practical Nurse Program and upon successful passing of the state board examination, return to complete the ADN program at a later date.

Planned learning experiences in small groups correlate theory and practice in a classroom, laboratory, and health care facilities. The nursing courses are sequential. A student successfully completing one level is ready to progress to the next course in the Nursing program. Nursing courses build upon the general education courses; thus, successful completion of each term is required for admission to the next term of the program.

Clinical laboratories are offered during the hours of 7:00 a.m. to 7:00 a.m. (any hospital shift of the 24-hour day) and may occur on any day of the week.

Entrance Requirements and Progression

The nursing program is open to men and women. Admission policies and procedures will assist the student to determine the foundation skills necessary for achievement in the Nursing program. The nursing faculty believes that success in the program requires the student to have a concern for the needs of others: read, write, and use arithmetic with skill and comprehension; direct time and complete effort to participation in the Nursing program; have a means of transportation to clinical facilities throughout Portland, its suburbs, and neighboring communities; maintain good physical and mental health; and accept the philosophy of Portland Community College.

1. High school completion or GED test scores of 40 or above in each of five tests.
2. Satisfactory scores in preadmission tests.
3. Physical examination by licensed physician showing a satisfactory health status following selection. Portland Community College will provide forms.
4. Personal interview may be required.
5. Enrollment: a) Class size is determined by the number of clinical facilities and staff available. b) Progression: Student must receive a "P" or "C" in nursing and the required courses to progress into the next term. Any required courses not passed may be repeated one time only.
6. Because of the changing nature of the learning experience, the incoming student is given a contract which will give the specific expectations of that year.

Transfer Information—LPNs will need to meet the requirements of the first year prior to application for the second year.

Requests to transfer into the Nursing program must be in writing to the Nursing Department accompanied by transcripts of previous college courses.

Textbooks and Miscellaneous Expenses (approximate)—Books for nursing classes only: 1) Required texts - PN $20.00, ADN $40.00. 2) Students usually purchase additional books such as a dictionary, a medical surgical, obstetric, pediatric, and pharmacology text - PN $20.00, ADN $50.00. 3) Textbooks for other courses - PN $60.00, ADN $120.00. 4) Nursing kits - PN $5.00, ADN $5.00. 5) Uniform, name pin, shoes, scissors - PN $30.00, ADN $60.00. 6) Watch with sweep second - Prices vary with student choice. 7) Membership in student nurse organization (SNO) - PN $7.00, ADN $14.00.

Admission Procedures—Contact Health Professions Admissions Office for specific instructions regarding admissions.

Dept. Crs Course Title Class/Lab Cr Hrs/Wk Hr

First Year

First Term

Nur 101 Nursing Fundamentals 4 12 8
Sci 5.515 Microbiology 2 2 3
Sci 5.441 Basic Science Principles 3 2 4

Totals 9 16 15

Second Term

Nur 102 Nursing Fundamentals 4 12 8
Sci 5.442 Basic Science Principles 3 2 4
Sci 5.500 Human Biology 3 3
Psy 111 Personality and Development 3 3

Totals 13 14 18
### Third Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Nur 103</td>
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<tr>
<td>FL 225</td>
<td>12</td>
</tr>
<tr>
<td>Sp 100</td>
<td>3</td>
</tr>
<tr>
<td>Sp 111</td>
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Total credits required for P.N. certificate: 50

### Fourth Term

#### Practical Nurse Certificate

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PN 5.512</td>
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Total credits required for P.N. certificate: 60

### Second Year

### Fourth Term

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Nur 201</td>
<td>Physical and Mental Nursing 4 12 8</td>
</tr>
<tr>
<td>Sci 5.501</td>
<td>Human Biology I 3 3</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>6 6</td>
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</table>

Total credits: 10 13 14

### Fifth Term

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Nur 202</td>
<td>Physical and Mental Nursing 4 12 8</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>6 6</td>
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</table>

Total credits: 10 12 14

### Sixth Term

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Nur 203</td>
<td>Physical and Mental Nursing 4 12 8</td>
</tr>
<tr>
<td>Nur 207</td>
<td>Seminar: Trends in Nursing 2 2</td>
</tr>
<tr>
<td>General Education Electives</td>
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Total credits: 12 12 16

### Fourth Term

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Nur 103</td>
<td>Nursing Fundamentals I, 4 cl, 12 lab hr/wk, 8 cr</td>
</tr>
<tr>
<td>Nur 102</td>
<td>Nursing Fundamentals II, 4 cl, 12 lab hr/wk, 8 cr</td>
</tr>
<tr>
<td>Nur 101</td>
<td>Nursing Fundamentals III, 4 cl, 12 lab hr/wk, 8 cr</td>
</tr>
</tbody>
</table>

Total credits required for Associate of Applied Science in Nursing degree: 94

**General Education Requirement**

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general courses as part of his associate of applied science degree program from three or more of the following course areas:

- Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
- Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
- Communication courses (Writing, Speech)
- Health and Physical Education courses
- Science and Mathematics courses
- Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

Nur 101 (T), Nursing Fundamentals I, 4 cl, 12 lab hr/wk, 8 cr—The student will study an integrated approach to nursing fundamentals in which the conceptual framework is common daily needs of people. Topics introduced are: observation, communications, growth and development, body mechanics, nutrition, pharmacology, and asepsis. The student assesses nursing needs and practices nursing skills in hospitals, nursing homes, and community agencies using a problem-solving process. An individualized, modular approach in which the student begins to direct his/her own learning activity is introduced.

Nur 102 (T), Nursing Fundamentals II, 4 cl, 12 lab hr/wk, 8 cr—This course is a continuation of Nur 101 with expansion of the content areas. The student participates in nursing situations with mothers, infants, children, and adults in clinical areas using a problem-solving approach. Concepts and principles from supporting science and social science courses are applied in the nursing classes.

Nur 103 (T), Nursing Fundamentals III, 4 cl, 12 lab hr/wk, 8 cr—Concepts and principles from Nur 101 and 102 continue as building blocks. The organizational framework shifts to nursing care situations involving crisis, regulatory mechanisms, and dysfunction of body systems. The student participates in nursing situations of maternal-child health and physical-mental illness in all age groups.

Nur 201 (T), Physical and Mental Nursing I, 4 cl, 12 lab hr/wk, 8 cr—This course builds on prior nursing, science, and social science courses. The student plans nursing care based on physiopathology and physiological needs of people. Concepts introduced or expanded are: dependency, mental illness, immobility, altered states of consciousness, abberant cellular growth, and fluid and electrolyte balance. Decision making is emphasized in determining priorities. The student continues to practice in clinical facilities caring for all age groups in situations of increasing complexity.

Nur 202 (T), Physical and Mental Nursing II, 4 cl, 12 lab hr/wk, 8 cr—This course is a continuation of Nur 201. Students study and practice nursing in clinical situations involving failure of vital body systems in people of all ages. Team nursing, personnel assignment, and decision making with groups of patients are nursing processes in which the student participates.

Nur 203 (T), Physical and Mental Nursing III, 4 cl, 12 lab hr/wk, 8 cr—An advanced nursing course which prepares the student for role transition to graduate nursing. Community nursing and complex nursing care problems involving sensory dysfunction are studied and practiced.

### Additional Nursing Offerings

Nur 111 (T), Background for Nursing, 3 cl hr/wk, 3 cr—This is an introductory course in which the student explores the relationship of nursing to historical and current issues and events. The class is open to students considering nursing as a vocational choice, prior to their application for the Nursing program. It is not a requirement for completion of the Nursing program at Portland Community College. Offered spring or summer term.

### Pre-employment Offerings

PA 9.420, Patient Aide, Nur 9.401, Registered Nurse Refresher, PN 9.520, Licensed Practical Nurse Refresher—For further information as to the time, place, and tuition see the special brochure, "Continuing Education Courses for Nurses", available at the Information Center, Sylvania.
Nursing Administration and Faculty
Arthur Stevens
  Dean
Rose Christensen
  Department Chairman
Instructors:
  Shirley Anderson
  Dorothy Ball
  Mary Blake
  Dorothy Burchette
  Debra Castellan
  Irene Cohn
  Carol Connolly
  Pramilla Dahye
  Dorothy Darm
  Wanda Fitterer
  Hazel Hale
  Carolyn Hughes
  Rebecca Larimer
  Emma Sue Malten
  Darthula Miller
  Pamela Miller
  Tim Miller
  Sherrill Moore
  Clara Williams
  Clarissa Williams
Transportation

Career programs offered at Portland Community College in the field of transportation include: Auto Body Repair, Auto Painting, Automotive Technology, Aviation Maintenance Technology, Diesel Service Mechanics, Marine Engineering Technology, Small Engine Repair.

A one term course (300 clock hours) in Rotary Wing Maintenance is available for individuals wishing training in this specialized area of Aviation Maintenance Technology.

Auto Body Repair

Job Description—The auto body repairman repairs damaged vehicles by straightening frames, removing dents from fenders and body panels, welding torn metal, replacing badly damaged parts, and refinishing.

Opportunities—Opportunities for employment are expected to increase moderately through the 1970's.

Potential Earnings—Journeyman wages vary from $10,000 to $15,000 a year. Many shops work on a percentage basis, and the mechanic's wages depend upon the time it takes for him/her to complete the job in a satisfactory manner.

PCC Program—A student may complete a two year certificate program or meet the requirements for an associate degree by taking the two year program and a minimum of 18 credit hours of General Education courses.

The program is designed to train students for a semi-skilled level in the auto body repair field. It is divided into six terms consisting of eleven weeks each. The student spends five hours per week in the classroom and twenty hours per week in a shop practical experience. Training is varied to give the student a broad understanding and background of the different phases of the auto body industry.

In these programs the student will have additional costs for tools and equipment. Contact the department chairman for price lists. A proportionate fee for welding will be charged in the first term based on the rate of $10.00 per three week period.

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Title</th>
<th>Clock</th>
<th>Hrs/Week</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td>AB 3.100 Auto Body Repair I</td>
<td>5</td>
<td>20</td>
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</tr>
<tr>
<td></td>
<td>General Education</td>
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<tr>
<td></td>
<td>Elective*</td>
<td>3</td>
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<tr>
<td></td>
<td>Totals</td>
<td>8</td>
<td>20</td>
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</tr>
<tr>
<td>Second Term</td>
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<td>5</td>
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<td>Elective*</td>
<td>3</td>
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<tr>
<td></td>
<td>Totals</td>
<td>8</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

*General Education Requirement

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his associate degree program from three or more of the following course areas:

- Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
- Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
- Communication courses (Writing, Speech)
- Health and Physical Education courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

Job Description—The student will study theory and operating principles of the auto electric and cooling systems, the removal and replacement of mechanical components as they pertain to auto body repair. In addition the student will demonstrate knowledge and skill in replacing used panel splicing procedures.

Fourth Term

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Clock</th>
<th>Hrs/Week</th>
<th>Cr</th>
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</thead>
<tbody>
<tr>
<td>AB 3.103 Auto Body Repair IV</td>
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<tr>
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Fifth Term

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<tbody>
<tr>
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<tr>
<td>Elective*</td>
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<tr>
<td>Totals</td>
<td>8</td>
<td>20</td>
<td>18</td>
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</table>

Sixth Term

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Clock</th>
<th>Hrs/Week</th>
<th>Cr</th>
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</thead>
<tbody>
<tr>
<td>AB 3.105 Auto Body Repair VI</td>
<td>5</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>General Education</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Elective*</td>
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</tr>
<tr>
<td>Totals</td>
<td>8</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

Total credits required for certificate—90
Total credits required for associate degree—108

Auto Painting

Job Description—The student will become familiar with the care and use of all painting equipment and will practice shop safety and conservation of materials. In addition the student will demonstrate the masking, application techniques, and surface preparation of various materials and autos.

Opportunities—Expected to increase moderately through the 1970's.

Potential Earnings—Wages vary from $8,000 — $11,000 a year. The large number of mechanics work in shops which operate on a percentage basis, and a skilled me-

<table>
<thead>
<tr>
<th>Year Certificate Program</th>
<th>Course Title</th>
<th>Clock</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td>AB 3.111 Auto Painting I</td>
<td>25</td>
<td>15</td>
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<tr>
<td>Second Term</td>
<td>AB 3.111 Auto Painting I</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>Third Term</td>
<td>AB 3.112 Auto Painting III</td>
<td>25</td>
<td>15</td>
</tr>
</tbody>
</table>

Total credits required for certificate—45

AB 3.110, Auto Painting I, 25 clock hrs, 15 cr—The student will demonstrate proficiency in applying the skills learned in the past five terms with emphasis placed on actual shop productions. The student will study theory and practical application in the repair of frame damage, fiber glass repair, and manufacture, and acrylic enamel topcoating.

Automotive Technology

Job Description—The automotive mechanic repairs and maintains the mechanical functions of automobiles.

Opportunities—Expected to increase moderately through the 1970's.

Potential Earnings—Wages vary from $8,000 — $11,000 a year. The large number of mechanics work in shops which operate on a percentage basis, and a skilled me-
PCC Program—PCC offers a flexible, unitized, auto mechanics program which allows the student to begin and to end studies at any time, select one of six certificate or degree programs, plan a schedule around his/her needs, and receive satisfactory achievement ratings by successfully performing actual-on-the-job objectives.

Auto mechanics is a program of three week instructional units. Each unit is a short course teaching the knowledge and skills of a special area. At the completion of the unit, the student must demonstrate that he/she can perform the unit's objectives. This achievement rating is documented, and the student proceeds to another unit. The student will repeat a unit until the skill and knowledge necessary for successful performance on-the-job is satisfactorily demonstrated.

Most units may be taken in any order and for this reason students may enter the program at the beginning of any three week unit. Only seven units have prerequisites. A student has maximum flexibility in setting up a program to meet time and educational needs.

The auto mechanics student may also select the job entry skills he/she wants to develop. The student may be certified as having job entry skills as either a Brake Specialist or as an Alignment Specialist after just three three-week units. In nine weeks a student may receive a certificate in transmission repair and in 21 weeks in tune-up. Twenty-two units will qualify a student for a two year certificate. With the addition of 18 hours of general studies a student completes requirements for an associate degree. A student may take the units he/she wishes, enter the work force, and then return at any time to build on the knowledge and skills already achieved.

Contact the PCC Automotive Shop for the beginning dates of new three week units.

In this program the student will have additional costs for tools and equipment. Contact the department for price list.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class Title</th>
<th>Class Cr</th>
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</thead>
<tbody>
<tr>
<td>AM 3.100</td>
<td>Unit 1: Engines (Dead)</td>
<td>(Prerequisite:</td>
<td>5</td>
</tr>
<tr>
<td>AM 3.102</td>
<td>Unit 2: Electrical (Components)</td>
<td>(Prerequisites: Units 1,2,3,10)</td>
<td>5</td>
</tr>
<tr>
<td>AM 3.104</td>
<td>Unit 3: Fundamental Tune-Up</td>
<td>(Prerequisite: Units 1,2,3,10)</td>
<td>5</td>
</tr>
<tr>
<td>AM 3.114</td>
<td>Unit 10: Fuel and Induction Systems 5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AM 3.126</td>
<td>Unit 28: Exhaust Emission Systems 5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AM 3.204</td>
<td>Unit 22: Tune-Up Diagnostic (2 sessions required)</td>
<td>(Prerequisite: Units 1,2,3,10)</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>28</td>
<td></td>
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</tr>
</tbody>
</table>

Alignment Specialist (9 week certificate)

| AM 3.106 | Unit 4: Steering, Suspension, and Wheel Balance | 5 | 4 |
| AM 3.210 | Unit 27: Steering Systems (2 sessions required) | (Prerequisite: Unit 4) | 5 | 8 |
| Totals | 12 |

Transmission Specialist (9 week certificate)

| AM 3.112 | Unit 6: Standard Transmissions | 5 | 4 |
| AM 3.118 | Unit 25: Automatic Transmissions Overhaul (2 sessions required) | 5 | 8 |
| Totals | 12 |

Brake Specialist (9 week certificate)

| AM 3.108 | Unit 5: Brakes | 5 | 4 |
| AM 3.206 | Unit 24: Brakes | (2 sessions required) | (Prerequisite: Unit 5) | 5 | 8 |
| Totals | 12 |

Two Year Certificate (22 units)

| AM 3.100 | Unit 1: Engines (Dead) | 5 | 4 |
| AM 3.102 | Unit 2: Electrical (Components) | 5 | 4 |
| AM 3.104 | Unit 3: Fundamental Tune-Up | 5 | 4 |
| AM 3.106 | Unit 4: Steering,Suspension, and Wheel Balance | 5 | 4 |
| AM 3.108 | Unit 5: Brakes | 5 | 4 |
| AM 3.110 | Unit 6: Clutch, Standard Transmission, and Rear Axle Assembly | 5 | 4 |
| AM 3.114 | Unit 10: Fuel and Induction Systems 5 | 4 |
| AM 3.116 | Unit 23: Air Conditioning | 5 | 4 |
| AM 3.118 | Unit 25: Automatic Transmission Overhaul (2 units required) | 5 | 4 |
| AM 3.200 | Unit 20: Engines (Live School Owned) (Prerequisite: Unit 1) | 5 | 4 |
| AM 3.202 | Unit 21: Electrical 5 (Live-on-the-Line) (Prerequisite: Unit 2) | 5 | 4 |
| AM 3.204 | Unit 22: Tune-Up Diagnostic (Prerequisites: Unit 1, 2,3,10) (2 units required) | 5 | 4 |
| AM 3.206 | Unit 24: Brakes (Prerequisite: Unit 5) | 5 | 4 |
| AM 3.210 | Unit 27: Steering Systems (Prerequisite: Unit 4) | 5 | 4 |
| AM 3.208 | Unit 28: General Repair* | 5 | 4 |
| AM 3.126 | Unit 28: Exhaust Emission Systems 5 (Prerequisites: Unit 1,2,3,10) | 5 | 4 |
| AM 3.124 | Unit 29: Automotive Tool Clerk and Parts Man (Elective) | 5 | 4 |

*Five sessions of Unit 26 required. Other units may be substituted depending on individual needs.

Associate of Applied Science in Automotive Mechanics Degree

In addition to the automotive courses required for the two year certificate, the student must complete a minimum of 18 credit hours of general education courses. Suggested general education courses include art, reading and writing, literature, physical education, physical science, social science.

AM 3.100, Unit 1—Engine (Dead), 5 hr/day, 3 wk, 4 cr—The student will disassemble and reassemble a non-operable laboratory engine. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:

1. Will know the basic function and/or use of, at operational level, and identify: a) Cylinder and valve arrangement; b) Valve operating mechanisms; c) Piston and ring arrangement; d) Crankshaft and bearing design; e) Lubrication and cooling systems
2. Remove, clean, and replace engine electrical and fuel units, manifolds, cylinder heads, and oil pan
3. Use precision measuring instruments to determine cylinder wear and engine displacement
4. Remove, replace, and clean all internal moving engine parts
5. Clean, measure, and inspect parts for serviceability (wear or damage). Make up cost analysis estimate and parts order. Use flat rate and technical manuals for reference
6. Adjust valve clearance when applicable. Adjust static ignition timing

AM 3.102, Unit 2—Electrical (Components), 5 hr/day, 3 wk, 4 cr—The student will work with batteries, starters, charging systems, and test equipment. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:

1. Learned basic function and/or use of components and parts
2. Identified components and parts
3. Removed, serviced, overhauled, tested and diagnosed problems and replaced units

AM 3.104, Unit 3—Fundamental Tune-Up, 5 hr/day, 3 wk, 4 cr—The student will work on minor tune-up. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:

1. Test battery voltage
2. Check for cranking voltage
3. Compression test
4. Primary and secondary ignition circuit service
5. Test charging system output
6. Minor carburetor adjustment

AM 3.106, Unit 4—Steering, Suspension, and Wheel Balance, 5 hr/day, 3 wk, 4 cr—The student will work on alignment and suspension systems and other factors contributing to roadability. Upon completion of this unit the student will have demonstrated acceptable levels of performance in diagnosing and/or servicing to include the following:
1. Alignment angles and correction.
2. Wheel balance.
3. Rear wheel tracking.
4. Suspension components.
5. Roadability factors.
7. Wheel bearings.

AM 3.108, Unit 5—Brakes, 5 hr/day, 3 wk, 4 cr—The student will work on the automotive brake system. Upon completion of this unit, the student will have demonstrated acceptable levels of performance to include the following:
1. Will know basic function and/or use and identify components and parts of the braking system.
2. Will disassemble, service, and reassemble components to include: a.) Master cylinder; b.) Wheel cylinder; c.) Backing plate; d.) Brake shoes; e.) Brake drums; f.) Disc brakes.

AM 3.110, Unit 6—Clutch, Standard Transmission, and Rear Axle Assembly, 5 hr/day, 3 wk, 4 cr—The student will work on laboratory equipment. Upon completion of this unit the student will have demonstrated acceptable levels of performance in disassembling, assembling, diagnosis, inspection, servicing, and repairing as necessary to include the following:
1. Clutches.
2. Standard transmissions.
3. Drive line assemblies.
4. Rear axle assemblies.

AM 3.114, Unit 10—Fuel and Induction Systems, 5 hr/day, 3 wk, 4 cr—The student will work with fuel pumps, carburetors, air filters, emission control devices, and diagnostic components. Upon completion of this unit, the student will have demonstrated acceptable levels of performance on the fuel and induction system components to include the following:
1. Perform tests.
2. Diagnose.
4. Perform repairs.

AM 3.116, Unit 23—Air Conditioning, 5 hr/day, 3 wk, 4 cr—The student will work on both component parts of automotive air conditioners and approved customer automobiles. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Testing air conditioning systems.
2. Repair or replacement of parts.
3. Recharging systems.
5. Testing and repair of vacuum circuits.

AM 3.118, Unit 25—Automatic Transmission Overhaul, 5 hr/day, 3 wk, 4 cr—The student will work on school supplied automatic transmissions. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Tracing the power flow.
2. Diagnose problems.
3. Disassemble.
4. Inspect and evaluate.
5. Make parts and cost analysis; replace as required.
6. Clean and lay out components.
7. Reassemble and adjust transmission.

For Transmission Specialist, two sessions are required.

AM 3.124, Unit 29—Automotive Tool Clerk and Parts Man, 5 hr/day, 3 wk, 4 cr—The student will work on the school automotive parts and tool control facility. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Purchase, store, and issue parts, tools, and supplies.
3. Read and interpret shop and parts manuals.
4. Procure parts, tools, and supplies.
5. Inventory and maintain records of parts, tools, and supplies.

AM 3.126, Unit 28—Exhaust Emission Systems, 5 hr/day, 3 wk, 4 cr—The student will work on exhaust emission controls and approved customer automobiles. Upon completion of this unit the student will have demonstrated acceptable levels of performance in disassembling, assembling, diagnosis, servicing, and repairing as necessary to include the following:
1. Crankcase systems.
2. Exhaust systems.
3. Fuel vaporization systems.

Prerequisites: Units 1, 2, 3, and 10.

AM 3.206, Unit 24—Brakes, 5 hr/day, 3 wk, 4 cr—The student will work on approved customer automobiles. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Diagnose customer’s complaint.
2. Analyze cost.
3. Repair and/or replace: a.) Master cylinder; b.) Power cylinder; c.) Wheel cylinder and calipers; d.) Hydraulic brake lines and/or hoses and/or related parts; f.) Drum or rotor; g.) Parking brake systems; h.) Landing gear; i.) Proportioning valves; j.) Bleed systems.
4. Repack and/or service wheel bearings.
5. Replace rear axle bearings; m.) Stop light systems (hydraulic); n.) Dynamo-meter test; o.) Perform adjustments.
6. Utilize safety check sheet.
Prerequisite: Unit 5. For Brake Specialist, two sessions are required.

AM 3.208, Unit 26—General Repair, 5 hr/day, 3 wk, 4 cr—The student will work on approved customer automobiles. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Make diagnosis of any customer’s complaint.
2. Initiate job orders and bring to a conclusion.
3. Estimate job costs.
4. Make electrical repairs.
5. Make chassis repairs.
6. Make drive train repairs.
7. Make comfort system repairs.
8. Read and properly use manuals.
9. Read and properly use schematics.
10. Demonstrate quality craftsmanship.
11. Use time to best advantage.
12. Meet a degree of flat rate.
13. Make all repairs to manufacturer’s specifications.
Prerequisites: Units 1-6, 20, 21, 22, 23, 24, 25, and 27.

AM 3.210, Unit 27—Steering Systems, 5 hr/day, 3 wk, 4 cr—The student will work on approved customer automobiles. Upon completion of this unit the student will have demonstrated acceptable levels of performance to include the following:
1. Diagnose steering and suspension problems.
2. Properly align front and rear ends.
3. Check (not repair) frame alignment.
4. Repair and/or replace: a.) Shocks; b.) Control arms and/or bushings; c.) Strut, track and torque arms and/or bushings.
6. Ball joints; f.) Linkage parts;
Aviation Maintenance Technology

**Job Description**—Graduates may find employment in general aviation, commercial aviation, and helicopter maintenance. Job involves emergency repairs, general maintenance, and major overhaul.

**Opportunities**—Students graduating from the Aviation Maintenance Technology program have many employment opportunities in the Portland area in general aviation, helicopter maintenance, and related vocational areas. Those students desiring employment in commercial aviation have found it necessary to relocate to areas designated by the airlines.

**Potential Earnings**—A journeyman earns between $800 and $1000 a month. Wages will vary depending on the place of employment.

**PCC Program**—The Aviation Maintenance Technology program is approved by the State Division of Vocational Education, by the Veterans Administration, and by the Federal Aviation Administration. Portland Community College has been issued Air Agency Certificate Number 41Q-1.

The Aviation Maintenance Technology program is approved for conferring an associate of applied science degree upon completion of the minimum FAA requirements of 1900 clock hours and completion of 18 term hours of general education. Registration is held every three weeks at PCC Cascade as classes are offered in a modular system. The student specializes in one subject area at a time. After satisfactorily completing the objectives of that area, the student progresses to the next subject area.

A proportionate fee for optional welding will be charged based on the rate of $10 per three week period.

**Program Options**—

1. Three term program for Airframe Mechanics license
2. Three term program for Powerplant Mechanics license
3. Airframe and Powerplant License (must complete Airframe Mechanics and Powerplant Mechanics options)

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**Course Descriptions**

**General Core (required for all options)**

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Hr</th>
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<tbody>
<tr>
<td>AP 3.222</td>
<td>Basic Science</td>
<td>60 120 18</td>
</tr>
<tr>
<td>AP 3.235</td>
<td>Electricity</td>
<td>120 240 16</td>
</tr>
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**Airframe Mechanics License Option**

| AP 3.233 | Woodworking | 30 60 4 |
| AP 3.234 | Sheet Metal | 60 120 8 |
| AP 3.236 | Welding | 60 120 8 |
| AP 3.237 | Dope and Fabric | 30 60 4 |
| AP 3.238 | Assembly and Rigging | 30 60 4 |
| AP 3.239 | Systems and Instruments | 30 60 4 |
| AP 3.240 | Hydraulics | 30 60 4 |

**Powerplant Mechanics License Option**

| AP 3.227 | Carburetion | 30 60 4 |
| AP 3.228 | Magneto | 30 60 4 |
| AP 3.229 | Propellers | 30 60 4 |
| AP 3.230 | Engine Overhaul | 120 240 16 |
| AP 3.231 | Jet Engines | 60 120 8 |

**Airframe and Powerplant Practical**

Airframe and Powerplant Practical is offered to students who have transferred from other schools and are lacking the clock hours required for completion of this course for either one or both licenses.

| AP 3.242 | A&P Practical I | 90 4 |
| AP 3.243 | A&P Practical II | 180 8 |
| AP 3.244 | A&P Practical III | 270 12 |
| AP 3.245 | A&P Practical IV | 360 16 |

**Total**

| 270 540 36 |

**Total Clock Hours**

| 900 40 |

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**Electrical Systems**

| AP 3.231, Jet Engines, 60cl, 120lab hr, 8cr |
| AP 3.232, Woodworking, 30cl, 60lab hr, 4cr |
| AP 3.233, Woodworking, 30cl, 60lab hr, 6cr |
| AP 3.234, Sheet Metal, 60cl, 120lab hr, 8cr |
| AP 3.235, Electricity, 120cl, 240lab hr, 16cr |
| AP 3.236, Welding, 60cl, 120lab hr, 8cr |
| AP 3.237, Dope and Fabric, 30cl, 60lab hr, 4cr |

**Additional Course Descriptions**

| AP 3.222, Basic Science, 60cl, 120lab hr, 8cr |
| AP 3.227, Carburetion, 30cl, 60lab hr, 4cr |
| AP 3.228, Magneto, 30cl, 60lab hr, 4cr |
| AP 3.229, Propellers, 30cl, 60lab hr, 4cr |
| AP 3.230, Engine Overhaul, 120cl, 240lab hr, 16cr |
| AP 3.231, Jet Engines, 60cl, 120lab hr, 8cr |
| AP 3.232, Woodworking, 30cl, 60lab hr, 4cr |
| AP 3.233, Woodworking, 30cl, 60lab hr, 6cr |
| AP 3.234, Sheet Metal, 60cl, 120lab hr, 8cr |
| AP 3.235, Electricity, 120cl, 240lab hr, 16cr |
| AP 3.236, Welding, 60cl, 120lab hr, 8cr |

**Additional Course Options**

| AP 3.222, Basic Science, 60cl, 120lab hr, 8cr |
| AP 3.227, Carburetion, 30cl, 60lab hr, 4cr |
| AP 3.228, Magneto, 30cl, 60lab hr, 4cr |
| AP 3.229, Propellers, 30cl, 60lab hr, 4cr |
| AP 3.230, Engine Overhaul, 120cl, 240lab hr, 16cr |
| AP 3.231, Jet Engines, 60cl, 120lab hr, 8cr |
| AP 3.232, Woodworking, 30cl, 60lab hr, 4cr |
| AP 3.233, Woodworking, 30cl, 60lab hr, 6cr |
| AP 3.234, Sheet Metal, 60cl, 120lab hr, 8cr |
| AP 3.235, Electricity, 120cl, 240lab hr, 16cr |
| AP 3.236, Welding, 60cl, 120lab hr, 8cr |
4 cr—A fundamental course in aircraft dope and fabric methods and procedures. The student will make repairs and alterations on all types of fabric aircraft. Upon completion the student will be able to perform at the skill levels as stated in Federal Air Regulations part 147.

AP 3.238, Assembly and Rigging, 30 cl, 60 lab hr, 4 cr—The student will have a working knowledge of theory and accepted practices involved in the assembling and rigging of rotary wing and fixed wing aircraft, control surfaces, and other components involved. In addition the student will understand the selection and use of A. N. hardware, the jacking and weighing of aircraft, and the inspection of airframes. Upon completion the student will be able to perform at the skill levels as stated in Federal Air Regulations part 147.

AP 3.239, Systems and Instruments, 30 cl, 60 lab hr, 4 cr—The student will have an understanding of the systems and instruments involved in the assembling and rigging of rotary wing and fixed wing aircraft. The student will be able to perform all operations to a professional level as stated in Federal Air Regulations part 147.

AP 3.240, Hydraulics, 30 cl, 60 lab hr, 4 cr—The student will have knowledge of the principles and theories associated with hydraulics and pneumatic systems. The student will be able to perform basic operations. Upon completion the student will be able to perform at the skill levels as stated in Federal Air Regulations part 147.

AP 3.242, 3.243, 3.244, 3.245, Airframe and/or Powerplant Practical I, II, III, IV, 90 lab hr, 4 cr—This phase will be used by students who have completed all required phases of the aircraft and/or powerplant course but have not completed the required hours. (Phase is reserved for make-up only.)

The length of this course is one college term. This allows for 300 clock hours (110 hours of classroom lectures and examinations and 200 hours in the shops).

Upon successful completion of this course, the individual will have a well-rounded knowledge of roto-craft operation and maintenance.

Specialty courses

Job Description—The diesel service mechanic repairs and maintains diesel engines on trucks, buses, construction equipment, etc. The work also includes service and repair on the drive lines and related equipment.

Opportunities—Employment opportunities are excellent now and are expected to remain good in the foreseeable future.

Potential Earnings—Wages for journeymen vary from $9,000 to $12,000 a year.

PCC Program—The student will complete requirements for a one-year certificate in diesel engine or power train chassis or with the addition of a second year and 18 credit hours of General Education courses, may receive an Associate of Applied Science in Diesel Service Mechanics degree. The program prepares students for an entry-level job.

In this program the student will have additional costs for tools and equipment. Contact the department chairman for price list. A proportionate fee for optional welding will be charged based on the rate of $10 per three-week period.

Contact the department chairman for price list. A proportionate fee for optional welding will be charged based on the rate of $10 per three-week period.

Diesel Service Mechanics

Job Description—The diesel service mechanic repairs and maintains diesel engines on trucks, buses, construction equipment, etc. The work also includes service and repair on the drive lines and related equipment.

Opportunities—Employment opportunities are excellent now and are expected to remain good in the foreseeable future.

Potential Earnings—Wages for journeymen vary from $9,000 to $12,000 a year.

PCC Program—The student will complete requirements for a one-year certificate in diesel engine or power train chassis or with the addition of a second year and 18 credit hours of General Education courses, may receive an Associate of Applied Science in Diesel Service Mechanics degree. The program prepares students for an entry-level job.

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Contact the department chairman for price list. A proportionate fee for optional welding will be charged based on the rate of $10 per three-week period.

Recommended Electives (Select one)

Revised by: T. S. D. D.
on mild steel and alloy sheet metal and tubing.

**Marine Engineering Technology**

**Job Description**—The technician may be a welder, diesel engine mechanic, marine electrician, leverman, dragtender — hopper dredge, third assistant engineer — steam-electric, engineering equipment operator, third assistant engineer — diesel, third mate, quartermaster — hopper dredge, fireman-watertender, wiper, mess attendant, deckhand — hopper dredge, marine equipment repairer, marine oiler — steam-hopper dredge, marine oiler — diesel-hopper dredge, laborer.

**Opportunities**—Some vacancies always available to trained personnel.

**Potential Earnings**—Ship repair—$4.50 per hour starting.

**PCC Program**—A two year associate of applied science degree program which includes courses in engines, refrigeration, instrumentation, welding, boat safety, marine industry economics, and shipboard experience. By attending a summer session the student may complete the Marine Engineering Technology associate degree program in 18 months. Registration is held every three weeks as classes are offered in a modular system. The student specializes in one subject area at a time. After satisfactorily completing the objectives of that area, he/she progresses to the next subject.

In this program the student will have additional costs of tools and equipment. Contact the department coordinator for price list.

A proportionate fee for welding will be charged based on the rate of $10 per three week period.

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<td>MT 3.106</td>
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**PCC Program**—A two year associate of applied science degree program which includes courses in engines, refrigeration, instrumentation, welding, boat safety, marine industry economics, and shipboard experience. By attending a summer session the student may complete the Marine Engineering Technology associate degree program in 18 months. Registration is held every three weeks as classes are offered in a modular system. The student specializes in one subject area at a time. After satisfactorily completing the objectives of that area, he/she progresses to the next subject.

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</table>
MT 3.109, Introduction to Navigation, 2 cl, 1lab hr/wk, 2cr—The student will develop a basic knowledge of navigation in inland and coastal water and the use of marine compass, charts, tide and current tables, and electronic aids to navigation.

The student also will develop a basic knowledge of ocean navigation, the use of the marine sextant, and long range electronic aids to navigation.

MT 3.110, Ship's MachineShop Practice, 2 cl, 6 lab hr/wk, 3cr—The student will develop a high degree of skill in the use of hand tools, taps, dies, drill press, grinder, sander, commonly used measuring instruments, and the engine lathe. Emphasis is placed on safe and efficient operation of hand and power equipment.

MT 3.112, Small Engine Repair I, 2 cl, 6 lab hr/wk, 3cr—The student will demonstrate understanding of small engine principles, safety factors, care and use of shop equipment, and proper use of manufacturer's specifications, manuals, catalogs, and price lists. Student will develop an understanding of the problems of the small engine industry.

MT 3.114, Small Engine Repair II, 2 cl, 6 lab hr/wk, 3cr—The student will demonstrate knowledge and skill in the safe operation of the oxyacetylene outfit. He/she will gain proficiency and meet the requirements for satisfactory brazing, flame cutting, and pipe welding.

MT 3.116, Marine Gas Welding, 2 cl, 6 lab hr/wk, 3cr—The student will demonstrate knowledge and skill in the safe operation of the oxyacetylene outfit. He/she will produce satisfactory gas welds on steel joints and will gain proficiency in using the equipment required for satisfactory brazing, flame cutting, pipe welding.

MT 3.118, Marine Arc Welding, 1 cl, 6 lab hr/wk, 3cr—The student will demonstrate knowledge of the principles of operation of the different types of arc welding machines, controls, and welding methods. Student will gain skill in the proper routine and emergency repairs on shore and aboard ship.

MT 3.120, Marine Electricity I, 3 cl, 3 lab hr/wk, 4cr—This course presents the fundamentals of DC series, parallel circuits, and Ohm's law. During the laboratory portion of the course the student will demonstrate ability to use meters and to service and repair motors and generators. Student will also check circuits and other electrical equipment aboard the school vessel.

MT 3.121, Marine Electricity II, 3 cl, 3 lab hr/wk, 4cr—The student will become familiar with electrical engineering regulations as found in the U.S. Coast Guard Publication C. G. 259. Student will study AC motors, alternators, transformers, and polyphase circuits and will perform routine electrical maintenance aboard the school training vessel at an acceptable operational level.

MT 3.122, Diesel Engines I, 2 cl, 3 lab hr/wk, 3cr—The student will study and demonstrate knowledge of the construction and design, and skill in the operations of diesel propulsion and auxiliary diesel engines.

MT 3.124, Diesel Engines II, 2 cl, 3 lab hr/wk, 3cr—The student will remove, disassemble, repair, reinstall, service, and troubleshoot vessel diesel engines.

MT 3.126, Turbine Engines I, 3 cl, 4 lab hr/wk, 4cr—The student will study the elementary principles, construction, classifications, and accessories of various types of main and auxiliary turbines. Student will operate the turbine engines.

MT 3.128, Turbine Engines II, 2 cl, 2 lab hr/wk, 3cr—The student will operate, maintain, and perform routine service and emergency repairs of main propulsion turbines.

MT 3.130, Marine Hydraulics I, 2 cl, 2 lab hr/wk, 3cr—The student will develop skill in the use of hydraulic power units, hydraulic directional control valves, switches, relays, power unit motor controls, solenoid valves, check valves, cylinders, gear pumps, sequence valves, and four-way valves.

MT 3.132, Marine Hydraulics II, 3 cl, 3 lab hr/wk, 4cr—The student will demonstrate proficiency in the use of hydraulic power units, hydraulic directional control valves, switches, relays, power unit motor controls, solenoid valves, check valves, cylinders, gear pumps, sequence valves, and four-way valves.

MT 3.134, Basic Marine Refrigeration, 3 cl, 3 lab hr/wk, 4cr—This is a basic course covering the refrigeration processes used in the marine field. The student will study and demonstrate his/her skills in operating the refrigeration plant aboard the training vessel.

MT 3.136, Engine Department Maintenance, 2 cl, 5 lab hr/wk, 4cr—This is a basic course covering the routine and emergency repairs on shore and aboard ship.

MT 3.138, Auxiliary Machinery, 2 cl, 6 lab hr/wk, 4cr—The student will demonstrate skill and understanding during the operation of heat exchangers, pumps, air ejectors, steering machinery, distilling plants, pressure vessels, and miscellaneous piping systems.

MT 3.140, Instrumentation, 2 cl, 3 lab/hr/wk, 3cr—The student will develop skills in measuring physical quantities, including principles of pneumatic, hydraulic, and electrical systems. Students will develop skill in removal, servicing, and reinstallation of the instruments.

MT 3.142, Marine Refrigeration Systems, 3 cl, 3 lab hr/wk, 4cr—The student will demonstrate understanding and skill in the proper care and operation of refrigeration and marine air conditioning systems. Specific areas of concentration include ammonia systems, freon systems, and related auxiliaries.

MT 3.144, Pollution Control, 3 cl, 3 lab hr/wk, 4cr—The student will be tested on knowledge and skill regarding the use of contaminate boom, dispersants, and absorbents in handling oil spills.

Small Engine Repair

Job Description—The small engine repair technician performs general maintenance and repairs of motorcycles and other recreational equipment, farm and home power implements, and marine outboard motors.

Opportunities—Good employment opportunities due to increased uses of equipment.

Potential Earnings—$2.90 per hour entry apprentice; $3.30 per hour top apprentice; $5.30 per hour top journeymen; $5.90 per hour top experienced shop foreman.

PCC Program—The four term certificate program will prepare students for entry-level positions. In addition to the pre-em-ployment program, Small Engine Repair will offer supplementary training for students in PCC's Diesel Service, Automotive Mechanics, and Marine Engineering Technology programs. A third program objective is to offer evening hobby classes for the community.

The Small Engine Repair program uses an individualized learning, multi-media, in-structional approach which means students work toward performance objectives at their own pace using a variety of films and tapes combined with practical work experiences. A laboratory with non-running equipment is used for simulated learning experiences; students also will repair live engines.

In this program the student will have additional costs for tools and equipment. Contact the coordinator for a price list. A proportionate fee for optional welding will be charged based on the rate of $10 per three week period.

Dep't Crs Course Title Clock Cr Hrs Hr

First Term

SE 3.100 Small Engine Repair 30 15

A. Two cycle automated hands-on for garden and farm implements.

The student will perform the following operations: Carburetor Disassembly; Carburetor Cleaning and Inspection; Carburetor Assembly; Magneto Disassembly; Magneto Theory; Magneto Assembly; Powerhead Disassembly; Powerhead Inspection; Powerhead Assembly; Major Components Disassembly; Major Components Inspection; Major Components Assembly; Piston and Rod Disassembly; Piston and Rod Inspection; Piston and Rod Assembly; Engine Accessories Disassembly; Engine Accessories Inspection; Engine Accessories Assembly.

B. Four cycle automated hands-on for garden and farm implements.

The student will perform the following
operations: Carburetor Servicing; Four Cycle Carburetor; Cooling Systems; Wiring Diagrams; Using the Micrometer; Preventive Maintenance; Powerhead Disassembly; Powerhead Operation; Powerhead Assembly; Tappets and Cams; Valve Serving; Crankshaft and Bearings; Starter Servicing; Basic Trouble Diagnosis; Ignition Servicing; Fuel Pumps; Using the Parts Catalog; Four Cycle Theory.

C. Two cycle and four cycle engine application for garden implements.

The student will perform the following operations: Electric Starter Overhaul; Theory of Alternators and Generators; Electrical System Maintenance; Lawn-Boy Tune-Up; Lawn-Boy Magneto Theory and Testing; Lawn-Boy Spark Plug Servicing; B and S Using Torque Wrenches; B and S Using the Service Manual; B and S Using Troubleshooting Charts; Tecumseh Engine Disassembly; Tecumseh Engine Clean and Inspect; Tecumseh Engine Assembly; O and R Engine Disassembly; O and R Engine Clean and Inspect; O and R Engine Assembly; Harley-Davidson Engine Disassembly; Harley-Davidson Engine Clean and Inspect; Harley-Davidson Engine Assembly.

D. Supervised study five hours per day — one hour independent study.

E. Service and repair.

F. (Optional) Oxy-Acetylene Welding.

G. (Optional) Electrical Arc Welding.

H. (Optional) Shop Practice.

Second Term

SE 3.150 Small Engine Repair II 30 15

A. Two cycle (repeat from fall term).

B. Four cycle (repeat from fall term).

C. Two cycle and four cycle engine application for motorcycles.

D. Electrical systems for small engines.

The student will have supervised study five hours per day — one hour Independent study; service and repair of transmissions and fuel drives.

Lectures and demonstrations on principles of Japanese motorcycle — operation and construction; British motorcycle — operation and construction; European motorcycle — operation and construction.

Third Term

SE 3.200 Small Engine Repair III 30 15

A. Marine engine automated hands-on for outboard marine engines.

The student will perform the following operations: Engine Powerhead Disassembly; Engine Powerhead Cleaning and Inspection; Engine Fuel System Disassembly; Engine Fuel System Cleaning and Inspection; Engine Fuel System Reassembly; Engine Gearcase Disassembly; Engine Gearcase Cleaning and Inspection; Engine Gearcase Reassembly; Engine Magneto and Starter Disassembly; Engine Magneto and Starter Cleaning and Inspection; Engine Magneto and Starter Reassembly; Lower Engine Disassembly; Lower Engine Cleaning and Inspection; Lower Engine Reassembly; Major Engine Disassembly; Major Engine Cleaning and Inspection; Major Engine Reassembly.

B. Marine Engine Practical

The student will perform troubleshooting and tune-up procedures in the marine engine repair shop.

C. Supervised study — five hours per day — one hour Independent study.

D. Optional — Two cycle (repeat from fall term).

E. Optional — Four cycle (repeat from fall term).

F. Optional — Motorcycle repair (repeat from winter term).

Fourth Term

SE 3.250 Small Engine Repair IV 30 15

A. Chain Saw Theory and Operation Live Chain Saw; Teardown and Repair

B. Rotary Combustion; Engine Theory and Operation; Live Rotary Engine; Teardown and Reassembly

C. Optional — Blueprint Reading

D. Optional — Shop Practice

E. Optional — Small Business Administration

F. Optional — Outboard Motor — Advanced Program

Portland Community College offers classes in this subject area in locations throughout the community such as Aviation Instrument Rating, Celestial Navigation, Motorcycle Safety, Auto Tune-Up and Maintenance, Bicycle Repair and Maintenance, Care and Feeding of V.W.'s, Motor Control, Motorcycle Repair and Maintenance, Powderpuff Care and Feeding of V.W.'s, Powderpuff Mechanics, Small Gas Engine Repair, and Welding. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number (e.g. Psy 201 (T)); those carrying transferable credits are followed by a (T) and may be transferred to an accredited four-year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
Veterinary Science Technology

The Veterinary Science Technology program of Portland Community College has been developed with the approval and support of the Oregon Veterinary Medical Association. Portland Community College serves as the state education center for veterinary science technology as designated by the Oregon State Board of Education.

The program is a two-year associate degree program and is designed to prepare the student to support and complement the activities of the practitioners of the veterinary profession. The course combines on-campus instruction in general education including basic principles of science and mathematics, business principles, principles of management and supervision, and fundamental principles of applied veterinary practices with clinical experience gained through rotation in veterinary hospitals and clinics.

Upon satisfactory completion of the curriculum the student receives an associate of applied science degree and is qualified to take the state licensure examination administered by the Oregon State Veterinary Medical Examining Board.

Job Description—The veterinary assistant functions under the direction and control of a duly licensed or authorized practitioner of veterinary medicine and in accord with the provisions of state statutes which regulate their functions where such exist. This specially educated person is skilled and can perform the activities of the practitioners of the veterinary profession. The course combines on-campus instruction in general education including basic principles of science and mathematics, business principles, principles of management and supervision, and fundamental principles of applied veterinary practices with clinical experience gained through rotation in veterinary hospitals and clinics.

Opportunities—Graduates of this program can expect to find employment opportunities open to them in many diverse areas of the veterinary and bio-medical career fields. Each area may offer slightly different requirements, but most of the differences can be adapted individually through on-the-job part-time study.

The following are some examples of work that graduates would be prepared to do at the entry level. The titles may differ in some areas, and may be subject to change as work requirements change and new positions are created. Work areas include:

- small animal, large animal hospital, or clinic technicians; veterinary medical center technicians; laboratory animal research areas; educational areas as teaching assistants in schools and colleges of veterinary science technology; public health areas—food and milk sanitation; regulations compliance officer; meat and food inspection areas; military service areas; diagnostic areas for commercial firms, etc.

Potential Earnings—Salary ranges vary widely with locations over the country depending upon the type of job performed and the degree of responsibility inherent in each position. Some surveys have shown that salaries range from $400 to $700 per month.

Admissions—Because of limited laboratory space and clinical facilities as well as the need for more individualized instruction in this field, the Veterinary Science Technology program has a limited enrollment. Each student planning to enroll in the program must first consult with the Health Profession Admissions office for specific entrance requirements and a program counseling session. Students who are considering Veterinary Science Technology as a career are strongly encouraged to acquire a sound background in basic sciences and mathematics.

(Note: Only those students who have been officially accepted into the Veterinary Science Technology program may enroll in the veterinary science courses and the Health Record Technology courses listed below.)

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Second Year

Prerequisite: Successful completion of the first three terms.

Fourth Term

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<td>Medico-legal Implications in Veterinary Practice</td>
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<tr>
<td>VS 8.103</td>
<td>Applied Clinical Practice III</td>
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Seventh Term

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<th>Class/Lab Cr</th>
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<tr>
<td>VS 8.113</td>
<td>Principles and Practices of Medical and Surgical Assistance (Lab to be scheduled in clinics)</td>
<td>3 3</td>
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<tr>
<td>VS 8.114</td>
<td>Veterinary Science Technology Seminar</td>
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<tr>
<td>VS 8.104</td>
<td>Applied Clinical Practice IV</td>
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<tr>
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</table>

Total credits required for the Associate of Applied Science in Veterinary Science Technology degree—100

1 Minimum of three hours of college mathematics required.

2 General Education Requirement

As required by the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his associate of applied science degree program from three or more of the following course areas:

- Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
- Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
- Communication courses (Writing, Speech)
- Health and Physical Education courses
- Science and Mathematics courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required
courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

Recommended General Education Electives

Wr 1.101 Communication Skills or
Wr 111 English Composition
SS 121 Typing I or
Bus 2.101 Introduction to Accounting I
SS 122 Typing II or
Bus 2.103 Introduction to Accounting II or
VS 8.110 Grooming and Kennel Management
Psy 1.546 Psychology and Human Relations
Ec 115 Outlines of Economics
VS 8.115 Personnel Relations, Management, and Supervision (Prerequisite: Psy 1.546)

In addition to the Applied Clinical Practice time designated in the above weekly cur-riculum plan, students can expect to be assigned additional time on Saturdays, Sun-days, holidays, and school vacation periods.

VS 8.100, Principles and Practices of Animal Care Handling, 3 cr hr/wk, 3 cr.—The student will be introduced to the field of veterinary science including the types of services performed, as well as the general organizational plan of veterinary practices and clinics. The student will also discuss and have experience with animal breeding, basic nutrition, basic drugs and solutions, feeding methods, housing, techniques of restraint, oral medication techniques, basic skin examinations, temperature rec-ords, and preparing laboratory specimens. Hospitalization, operation and use of x-ray machines by which to administer radiography in the clinic such as the recognition of lesions or abnormal body functions important to autopsy and inspection procedures will be studied.

VS 8.101, 8.102, 8.103, 8.104, Applied Clinical Practice I, II, III, IV, 16/16/16/16 lab/hr/wk, 4/4/4/4cr—Practice I: The student will be assigned to various clinics within the Portland metropolitan area to become familiar with the organization and surroundings of veterinary clinics. The student will focus on practical experiences in performance of procedures and func-tions required of a veterinary assistant. Emphasis on this first clinical experience will be placed on the application of animal care and handling. This clinical course will also serve as an introduction to all phases of veterinary medicine and the veterinary clinics in order to develop an appreciation for the duties and functions of the veterinary assistant.

Practice II: The student will be rotated into various veterinary clinics with emphasis on animal feeding and nutrition as well as on gaining a solid understanding of the organization and techniques which have been learned in clinical laboratory procedures. Attention will also be directed to the basic office procedures as time permits.

Practice III: The student will apply the principles and techniques learned in veterinary radiology, anesthesiology, and pharmacology.

VS 8.105, 8.106, Basic Comparative Mammalian Anatomy and Physiology I, II, 3/3 cl hr, 3/3 lab hr/wk, 4/4 cr—Through lectures and related laboratory exercises using a basic systems approach, the student will learn the form and function of the an-nal body and its parts, as well as comparing and contrasting anatomical and physio-logical differences between the selected species. This course will also relate anatomy and physiology information as it applies to techniques and procedures utilized in veterinary clinics. In the laboratory, the student will dissect cadaver specimens and study skeletons in order to relate the lecture material to the laboratory.

VS 8.107, Applied Clinical Laboratory Proce-dures, 10 cl hr, 30 lab hr/wk, 15 cr.—A one term, fifteen credit hour course in which the student will learn the clinical laboratory procedures performed by a veterinary assistant in a veterinary prac-tice. The student will learn the use of select-ed equipment and the collection and handling of specimens required of a veterinary assistant in a veterinary prac-tice. The student will also receive an introduction to the practical application of x-ray machines by which to administer radiography in the clinic such as the recognition of lesions or abnormal body functions important to autopsy and inspection procedures will be studied.

VS 8.108, Animal Diseases, 3 cl hr/wk, 3 cr—This course will introduce the student to the various disease syndromes found in the animal body, including their development, prevention and control, as well as the recognition of lesions or abnormal body functions important to autopsy and inspection procedures will be studied.

VS 8.109, Animal Feeding, Nutrition, and Pharmacology, 3 cl hr/wk, 3 cr—The student will learn the principles of nutrition applicable to all classes of domestic and research animals such as nutrient re-quirements, synthesis and basic metabolism, appropriate diets for each animal class, preparation of various feeds, feed additives and their use, and the economic importance of feeds including a study of governmental controls and regulations. The student will also receive an introduction to general pharmacology including a study of the most commonly used drugs.

VS 8.110, Grooming and Kennel Manage-ment, 3 cl hr/wk, 3 cr—An elective course in which the student will learn to bathe, dry, and groom various breeds of dogs and cats, and to care for and maintain the care and development of films. As a separate part of this course, the student will receive an introduction to basic anesthetic agents, used in the operation of allied machines by which to administer anesthetic agents in clinics.

VS 8.111, Applied Radiography and Anes-thesiology, 3 cl hr/wk, 3 cr—This course will introduce the student to the practical application of radiography in the clinic such as the operation and use of x-ray machines and the care and development of films. As a separate part of this course, the student will receive an introduction to basic anesthetic agents and the operation of allied machines by which to administer anesthetic agents in clinics.

VS 8.112, Medical-Legal Implications in Veterinary Practice, 3 cl hr/wk, 3 cr—The student will learn the medical and legal responsibilities and limitations of practice of the veterinary assistant when employed by a veterinary clinic or hospital. This information will relate to the medical practice act of the veterinary profession.

VS 8.113, Principles and Practice of Medi-cal and Surgical Assistance, 3 cl hr/wk, 3 cr—This course will introduce the student to the procedures and techniques used in practical animal medicine and surgical assistants including a working knowledge of surgical techniques, equipment, and instrumen-tation.

VS 8.114, Veterinary Science Technology Seminar, 2 cl hr/wk, 2 cr—This seminar is designed to allow the student to discuss special topics and problems encountered in the clinical and classroom work of the program. The seminar will also be used to introduce the student to the human relations aspect of securing an appropriate job; functioning as a techni-cian-supervisor; maintaining relations with clients, union, and other organizational memberships; and addressing the problems posed by employment discrimina-tion. Methods for establishing good rapport and working relationships between technician and professional employer and between technician and subordinate employees will also be examined. Pre-requisite: Psy 1.546.

HRT 5.401, Animal Health Record System, 3 cl hr/wk, 3 cr—The student will learn basic types of veterinary records and will demonstrate knowledge and competency in admitting procedures, history taking, medical diagnosis, treatment, follow-up and diag-nosis procedures and maintaining the proper record. The student will also demonstrate the ability to translate from medical lan-guage to lay language and demonstrate knowledge of and ability to use reference books.

HRT 5.600, Introduction to Medical Terminology, 2 cl hr/wk, 2 cr—The student will study and demonstrate knowledge of medical words and phrases, common medical abbreviations, and some basic medical words related to the speciality of veterinary science technology. The student will study the medical words which are used in veterinary science technology. The student will also learn the use of consultation and reference material and store efficiency and learn to spell medical words. This course will be taught in the necessary subjects to meet the needs of the students in the Veterinary Science Technology program.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned deci-mal numbers (e.g. RM 4.200).

Course prerequisites and recommended sequences are stated in the course descrip-tion. Class hours and credits follow the course title in the course description.

For more information contact:

Arthur Stevens
Dean
James Holley
Coordinator
Randy Haase
Instructor
Welding Technology

Job Description—The primary work of welders is to join metal by means of a number of different welding processes which are covered by three basic categories—arc, gas, and resistance welding.

Opportunities—Opportunities for employment are expected to increase rapidly through the 1970's as the welding processes gain wider use in the metal working industries.

Potential Earnings—Annual wages for welders will vary from $14,000 - $20,000 a year.

PCC Program—The Welding Technology program at PCC offers training for entry-level employment in a broad variety of welding fields.

Training covers most every type of welding and includes acetylene, stick arc, and inert gas. Related subjects are also taught in close connection with welding and include blueprint reading, welding layout, fabrication practice, basic metallurgy, and heat treatment.

Students enrolled in the Welding Technology program will spend 25 hours a week in shop and related welding theory classes.

Completion of the first three term sequence prepares students for the Oregon State Department of Education, the student shall take a minimum of 18 credit hours of general education courses as part of his associate of applied science degree program from three or more of the following course areas:

- Arts and Humanities courses (Literature, Art, Music, Foreign Language, Drama, Journalism)
- Social Science courses (Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology)
- Communication courses (Writing, Speech)
- Health and Physical Education courses
- Science and Mathematics courses (Botany, Zoology, Biology, Chemistry, Physics, General Science, Geology)

These are in addition to the required courses listed. Questions concerning the acceptability of a course toward meeting general education requirements should be directed to the department chairman.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)] at this college. Those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact
Robert Palmer
Dean
Glen Fors
Department Chairman
Instructors:
Fred Fandrich
Howard Heberlein
Kenneth Hext
Bill McCoy
John Ugar
Many students who are working toward a baccalaureate degree take their first two years of study at Portland Community College and then transfer credits to a four-year institution. PCC offers a wide choice of general studies and liberal arts courses which are approved by the Oregon State System of Higher Education.

If you want to begin a transfer program at PCC:
1. Consult the list below for the schools in Oregon which accept PCC transfer programs.
2. Consult a manual titled Transfer Curricula published by the Oregon State System of Higher Education. This lists all program requirements and is available from every PCC counselor, the PCC library, and from many high school counselors.
3. Contact the school to which you will be transferring for their specific requirements.
4. Work with a PCC counselor to plan the program best suited to your needs.

You may accumulate up to 108 transferable credits at PCC. Any credits beyond this total must be earned at the four-year institution. Transferable credits obtained elsewhere than at PCC must be included in this total. All transfer courses described in this catalog are designated by a (T) following the course number.

### Associate of Arts or of Science Degree

For students planning to transfer credits to a four-year institution. A typical associate degree transfer program may include:
- A minimum of 90 quarter hours in the following areas:
  - English Composition: 6 hours
  - Physical Education: 5 hours
  - Health: 2 hours
  - Science or Math: 1 year's sequence
  - Social Science: 1 year's sequence
  - Literature or Foreign Language: 1 year's sequence
  - Associate of Science: 2 years' sequence in science, math or social science.
- Associate of Arts: 2 years' sequence in literature, foreign language, art, or related areas.
- Maintain a grade point average of 2.00 (Caverage)
- Accumulate at least 30 quarter hours of satisfactory work at Portland Community College.

### PCC Transfer Program

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<tr>
<th>Program</th>
<th>Four Year Institution</th>
<th>Years at PCC</th>
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<tr>
<td>Agriculture</td>
<td>OSU</td>
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<td>Anthropology</td>
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<tr>
<td>Applied Science</td>
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<td>Architecture</td>
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<td>Art</td>
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<tr>
<td>Applied Design</td>
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<tr>
<td>Art Education</td>
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</tr>
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<td>Botany</td>
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</tr>
<tr>
<td>Biology</td>
<td>PSU</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>PSU</td>
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<tr>
<td>Community Service and Public Affairs</td>
<td>PSU</td>
<td>2</td>
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<td>Dentistry</td>
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<tr>
<td>Education</td>
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<td>Astronomy</td>
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<tr>
<td>Mathematics</td>
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<td>Medical Technology</td>
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<td>Pharmacy</td>
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<td>Physical Education</td>
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### General Studies in Humanities

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<td>General Science</td>
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<td>General Studies in Science</td>
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<td>Secretarial</td>
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<td>Science</td>
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<td>Sociology</td>
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</table>
Language Arts

Courses in English, foreign languages, and speech are offered for the student who will transfer to a four year institution, who is completing his/her general education requirement for an associate of applied science degree, or is taking a course for personal enrichment.

See the College Transfer section of this catalog for a typical associate of arts or of science degree transfer program. To plan a major in any language arts area, contact the Language Arts department or a PCC counselor.

English

Literature

Eng 101, 102, 103 (T), Survey of English Literature, 3 cl hr/wk, 3 cr—The student will become familiar with literary works produced in the British Isles from earliest records to the present. This course is especially valuable for the student who wishes to major in English or who is interested in the development of the English literary tradition. Should be taken in sequence with exception to instructor approval only.

Eng 101: 7th century to the 16th century
Eng 102: 16th century to the 19th century
Eng 103: 19th century to present

Eng 104, 105, 106 (T), Introduction to Literature, 3 cl hr/wk, 3 cr—The student will study basic elements of form in prose fiction, drama, and poetry in order to read literature more effectively and to enlarge his/her reading experience and pleasure. (Need not be taken in sequence.)

Eng 104: Fiction
Eng 105: Drama
Eng 106: Poetry

Eng 107, 108, 109 (T), World Literature (Western), 3 cl hr/wk, 3 cr—The student will study works of ancient, medieval, Renaissance, and modern literature that have had notable influence and wide appeal outside their own country in order to discover their aesthetic and cultural assumptions. (English as a second language usually excluded. Oriental and ethnic literature may be included. Consult instructor.)

Eng 199 (T), Introduction to Myth, 3 cl hr/wk, 3 cr—Through selected literature from several cultures, the student will become aware of some of the universal questions about the meaning and worth of life as expressed in myth. The course is relevant to other studies in the humanities and to questions of the modern world and individual experience.

The course will fulfill literature requirements for majors who do not specify particular sequences. (Students should consult the requirements of the school to which they plan to transfer.)

Eng 201, 202, 203 (T), Shakespeare, 3 cl hr/wk, 3 cr—The student will read, discuss, and investigate five or more of Shakespeare's plays and certain sonnets each term.

The course will increase the student's enjoyment of poetry and drama, develop appreciation of the power of language, and expand awareness of the human condition.

Eng 207, 208, 209 (T), World Literature (Asian), 3 cl hr/wk, 3 cr—The student will read and discuss Chinese and Japanese literature in recent translations: poetry, prose, drama, and fiction.

Eng 207: 20th century literature, with emphasis on the short story and novel, especially Mishima, Kawabata and Tanizaki, and representative works from Communist and Republican China.

Eng 208: Chinese literature from early times (c.600 B.C.) through the 19th century, with emphasis on the Tang and Sung dynasties.

Eng 209: Japanese literature from early times (c.700 A.D.) through the 19th century, with emphasis on The Tale of Genji. The course may be taken out of sequence and compliments Asian History and History of Eastern Civilization.

Eng 253, 254, 255 (T), Survey of American Literature, 3 cl hr/wk, 3 cr—The student will study selected works by American writers of the past three hundred years in order to discover literary and philosophical trends as they clarify the American experience both past and present. Recommended that this course be taken in sequence.

Eng 253: Colonial Times through the Civil War
Eng 254: Whitman to Frost
Eng 255: To current periods.

Eng 275 (T), The Bible as Literature, 3 cl hr/wk, 3 cr—The student will examine kinds of biblical literature which continue to influence literary imagination. The student will consider how that literature came about; the roles that religion, culture, and interpretive contexts in which it was created and continues. Although the course will necessarily encounter theological questions, it will do so only when they have a direct bearing on the Bible as literature and not as a justification of theological positions.

Eng 210, 2105, Appreciation of Literature, 3 cl hr/wk, 3 cr—For the student who wishes to study literature for personal enrichment or to complete a requirement for the associate of applied science degree. The student will read and discuss poetry and prose, with special emphasis on specific genres of literature.

Sp 160 (T), Introduction to Film, 4 cl hr/wk, 3 cr—The student will view a number of representative films. Through discussion and guest lectures he/she will learn about the history of this medium and various techniques of the art of film making. The student will learn as related to other arts such as drama and literature but distinct as a contemporary form of art and communication.

Reading and Writing

Eng 50, 51, 52, Reading Improvement, 3 cl hr/wk, 3 cr—The student will work on a semi-individualized basis beginning with material suitable to his/her present reading level. The course is planned to include a refresher on phonics and vocabulary for students who feel that their background in reading essentials is too limited. The class works toward improvement in comprehension, rate, and vocabulary; the course includes sessions on study skills. A variety of techniques and equipment is used during the term. English 50 is transferable only as part of the associate degree package.

Eng 115 (T), Effective Reading, 3 cl hr/wk, 3 cr—This course is planned for the student who does not ordinarily have difficulty with word recognition, but who wants to increase rate and comprehension. The student will work toward elimination of faulty reading habits (such as word-by-word reading) before going on to work on advanced vocabulary and study skills along with the primary work on comprehension rate improvement. Students who are interested will work on inflection and evaluative reading. A variety of material and equipment is used in the course.

Wr 10, English Practicum I, 5 cl hr/wk, 3 cr—This course will provide individualized instruction in the basic tools of language. The student who enrolls in English Practicum I can expect to develop skills in reading, writing, speaking, and listening while being introduced to the tools that will be utilized in the student's development of communication skills in other courses. Access to tutorial, auditory, and visual aids are available in the Language Arts Resource Center.

Wr 15, English Practicum II, 5 cl hr/wk, 3 cr—This course will provide fundamental instruction in basic communications skills. The student who enrolls in English Practicum II can expect to increase ability to express him/herself in both speaking and writing. Fundamental insights in spelling, usage, punctuation, sentence construction will be stressed. The student will receive individualized instruction within a classroom situation. Tutorial assistance is utilized to assist the student with his/her own particular needs. This course may be repeated as many times as necessary.

Wr 30, 31, 32, English as a Non-Native Language, 3 cl hr vary, cr varies—For students whose native language is not English; this course is intended for students who wish to practice speaking, reading, and writing standard English. Students who have encountered language difficulties in their other college classes or in meeting requirements for vocational programs will benefit from the classes to gain an understanding of the usage of American English. Counseling and placement of non-native speakers of English before enrolling in classes at PCC is suggested; consult the English as a Non-Native language instructor at the Cascade Center.

Wr 40, 41, Introduction to Writing, 3 cl hr/wk, 3 cr—These courses emphasize basic skills in sentence structure, paragraph development, and reading comprehension for the student who needs additional preparation before entering English Composition, Communication Skills, or Business Communications. The student can expect to increase his/her ability to write clear sentences and to deal with related problems of usage, spelling, and punctuation.

Wr 41: The student will continue to improve skills introduced in Wr 40, with emphasis on paragraph organization and development.
Wr 60, Spelling, 3 cl hr/wk, 3 cr—Through a combined oral-aural-visual-kinetic approach, the student will learn specific words and roots as well as phonics and special rules. He/she should achieve meanings and appreciation in spelling skills through individual diagnosis and programs as well as group study.

Wr 111, 112, 113 (T), English Composition, 3 cl hr/wk, 3 cr—This sequence offered for transferable credits is required for most four year majors. The courses must be taken in sequence, beginning with Wr 111. English placement examination results are required for Wr 111 (the beginning course in the sequence). The placement examination may be taken in the English department office prior to registration and at specified locations during registration. Only two terms of English Composition are required for an associate of arts or of science degree at Portland Community College. Frequent conferences with the instructor are an important factor in every term of every English course. The student is urged to take advantage of his instructor and other groups in the writing of a paper or with any other course related problem.

Wr 111: The student will learn to develop ideas clearly in expository form. Wr 111 emphasizes unity, clarity, coherence, and detail.

Wr 112: The student will continue to develop skills emphasized in Wr 111, with stress on the rhetorical principles of argumentation. He/she will also investigate reference paper techniques and write a well-developed, logically developed paper.

Wr 113: The student will continue to develop writing skills introduced in Wr 111 and 112, but with emphasis on the study of elements of style.

Wr 214 (T), Business Correspondence, 3 cl hr/wk, 3 cr—The student will participate in a series of communication problems in order to learn to communicate with and gain the cooperation of others in the organizational structure of the business world. The student will study learning styles, problem solving techniques, leadership patterns, and communication networks; he/she will also write employment letters, resumes, and reports. Prerequisite is Wr 2.301, Business Communications I, or Wr 111, English Composition, with exception by instructor approval only.

Wr 227 (T), Police Report Writing, 3 cl hr/wk, 3 cr—This course has been developed to meet the specific writing needs of students in the Criminal Justice program. Emphasis is placed on writing reports with clarity and objectivity especially necessary to law enforcement.

Wr 241, 242, 243 (T), Creative Writing, 3 cl hr/wk, 3 cr—This course is designed to give the student a number of options in his/her own pursuits as a creative writer. Each term the works of established writers in different genres are examined, analyzed, and discussed in detail. The writing of students is presented to the class, also, for its response with a follow-up discussion and criticism of merit. Normally the class meets as a whole, with teacher-student conferences arranged as desired. There are no prerequisites and the course need not be taken in sequence.

Wr 241: Fiction—Traditional and innovative forms of fiction are examined for their use or non-use of plot, character, setting, and theme. The student will be asked to submit his/hers own fiction for analysis.

Wr 242: Poetry—Traditional and modern poetry are examined for form and content, i.e. metered and free forms and innovative, innovative language devices used to convey precise meanings, such as metaphor, image, and sound. The student will be asked to submit his/hers own poetry for analysis and to experiment with various forms.

Wr 243: Drama—Traditional, modern, and experimental plays, films, and scripts are examined for their adherence to and departures from the rules of drama which have been established by practice and critical opinion. The student will be asked to submit his/hers own dialogue or dramatic writing to the class for analysis.

Wr 244, 245 (T), Advanced Creative Writing, 3 cl hr/wk, 3 cr—This course will be aligned with the Commercial Art and Graphics Reproduction programs in order to create an interdisciplinary approach to magazine production. Students will be involved in all phases of writing, editing, printing, and marketing. The student magazine at Portland Community College. Students will be admitted by instructor's permission. At least two terms Wr 241, 242, or 243 are advisable. Offered winter and spring terms only.

Wr 1.101, 1.102, Communication Skills I, II, 3 cl hr/wk, 3 cr—Courses must be taken in sequence. To help the student enroll in the most appropriate class, the English placement examination should be taken before enrolling in Wr 1.101. The examination may be taken in the English office prior to registration and in specified locations during registration. Communications Skills I and II are the courses designed for the one and two year career education student. The courses are also available for the liberal arts student. The effect is the same for both institutions. The approach is a practical one, covering the areas the student will need in his/her profession. Special attention will be given to the student's individual field and its writing/reading/speaking requirements.

Wr 1.101: The student will learn the principles of descriptive and expository writing with special emphasis on paragraph unity and development as it relates to the writer's purpose, audience, selection, and validity of evidence. Additional areas which may receive emphasis are letter writing, the employment interview, telephone communications, and effective oral presentations.

Wr 1.102: The student will continue to develop skills introduced in Wr 1.101 with additional emphasis on oral communications and listening skills. Each student will give several oral class reports using visual aids. Oral and written assignments will be coordinated.

Wr 2.301, 2.302, Business Communications I, II, 3 cl hr/wk, 3 cr—Business Communications I and II provide the student with the background to plan, develop, and present a variety of oral and written communications appropriate to the many aspects of business administration, office occupations, and data processing. Because the skills developed in Wr 2.301 are a prerequisite for Wr 2.302, the course must be taken in sequence. Students enrolling in Wr 2.301 must have successfully completed the English placement examination.

Wr 2.301: While identifying audiences, practicing a variety of organizational patterns, and learning drafting and revision techniques, the student will prepare instructions, descriptions of devices and processes, definitions, and summaries. Combining planning, writing, and listening skills, the student will give at least one oral presentation.

Wr 2.302: As the student learns communication theory and professional techniques for business letter writing, he applies them in several immediately useful ways including preparing resumes, interview requests, and follow ups. Individual but appropriate style is encouraged. While learning about modern word processing, he will also develop machine dictation skills. Informal research and reporting techniques are also included.

Wr 6.126, Report Writing, 3 cl hr/wk, 3 cr—The student will write reports, prepare and deliver oral reports, and learn procedures of gathering data and compiling and organizing information as it leads to the preparation of a research report. The course is designed for students whose work will require the preparation of oral and written reports. Prerequisites: Wr 1.101 and Wr 1.102, Communication Skills I and II, exception by instructor approval only.

Foreign Languages

To achieve the objectives stated in the foreign language course descriptions, a student should plan to attend class regularly, participate and make an effort to understand in class, turn in homework regularly when assigned, use the tapes in the listening center, and seek help from the instructor when necessary.

French

Fr 101, 102, 103 (T), First Year French, 4/5 cl hr/wk, 4 cr—Fr 101: The student will learn to converse on a limited scale in the present tense about house, pets, school day, classes, personality, the weather. He/she will be able to record this same information in writing. Language lab practice required. No prerequisite.

Fr 102: The student will learn to converse in the present perfect, future tenses on the subjects listed above as well as on travel, money, his future, what he/she wants to do, current events. Student will be able to write on these same subjects. Language lab practice required. Fr 101 prerequisite.

Fr 103: The student will be able to converse using all the verb tenses becoming more abstract. Student will not find himself at a loss in a French speaking country. He/she will begin to achieve
fluency, will be able to understand most of a French film, will be able to write all that he/she can say, and will have an active vocabulary of about 2000 words. Prerequisite: Fr 101, 102.

Fr 150, 151 (T), First Year French, 6 cl hr/wk, 4 cr — A two term sequence (winter-spring) which begins the first year. Course description same as for Fr 101, 102, 103.

Fr 190 (T), Special Studies (credit to be arranged)

Fr 201, 202, 203 (T), Second Year French, 4/5 cl hr/wk, 4 cr — The student will be able to converse in the present and past tenses about house, pets, classes, family, personality, friends, the weather, politics, what he/she wants to do; will be able to write this information; will be able to understand most of a French film; will be able to read text edited for the intermediate level; and will be able to discuss what has been read. Fr 101, 102, 103 or equivalent prerequisite. Language lab practice may be required.

Fr 202: The student will be able to converse using nearly all the structures of the French language about subjects becoming more abstract and will be able to read and discuss more difficult texts for intermediate students.

Fr 203: The student will be able to converse using all the structures of the language, will be able to read an unedited text of French literature, will be able to discuss what he has read, will understand a French film, and will have a vocabulary of about 5,000 words and a passive (reading) vocabulary that is considerably higher.

Fr 214, 215, 216 (T), Intermediate French Conversation, 2 cl hr/wk, 2 cr — The student who completes this course will be able to converse on an adult level about clothes, personality, school experiences, home, travel, cooking, future, current events, money and business transactions, health, social life, literature. Prerequisite: Fr 101, 102, 103.

German

Ger 101 (T), First Year German, 4/5 cl hr/wk, 4 cr — The student will learn to ask and answer questions in the affirmative and negative and will understand the basic forms of German “the” and “a” and those words similar to them. He/she will manipulate verbs in the present tense and understand the minor irregularities in verbal forms, will use adjectives following nouns, will count to one million, and will do arithmetic problems. The student will converse about money matters, use nouns in their various “case” forms, and employ auxiliary verbs, will read short narratives and discuss them, and will compare like and unlike objects and state events in the past tense. The student’s active vocabulary will include approximately 800 words.

Ger 102 (T), First Year German, 4/5 cl hr/wk, 4 cr — The student will be able to use prepositions which indicate movement and fixed position, will be able to place adjectives before the noun, and will understand the genitive or possessive forms. The student will review and intensify usage of the past tense; will extend understanding of the nominative, accusative, and dative cases of the noun; will learn the irregularities of other past tense forms; will be exposed to a variety of cultural aspects of the European German speaking community; and will be capable of managing intelligent conversation regarding them. The student will read several long selections with abstract ideas and discuss them.

Ger 103 (T), First Year German, 4/5 cl hr/wk, 4 cr — This final term of First Year German will bring the student to an understanding of adjectives in all positions, the passive voice, the subjunctive mood in expressions of wish and hope or unreality, and verb position in compound sentences. Student will be aware of how to predict plural forms for all the nouns learned and will increase his active vocabulary to approximately 2,500 words, will learn all the tense forms of the verb, will do some controlled writing exercises and several original papers, and will spend the last few weeks of the term reading and discussing a series of short stories and anecdotes which deal with humorous aspects of German life. At this point the student will be capable of conversation which is adequate for travel in a German speaking country with a minimum of difficulty.

Ger 150, 151 (T), First Year German, 6 cl hr/wk, 6 cr — A two term sequence (winter-spring) which equals one full year. Course description same as for Ger 101, 102, 103.

Ger 199 (T), Special Studies (credit to be arranged)

Ger 201, 202, 203 (T), Second Year German, 4/5 cl hr/wk, 4 cr — The student will study thoroughly all the grammatical structures in approximately the same sequence as presented in the first year course. The student will read and discuss programmed materials which later will form the basis for written compositions. He/she will spend the last term reading, discussing, and writing short papers concerning Nordic sagas and legends and also contemporary unedited prose works which will extend the vocabulary by 2,500 words. The student will broaden knowledge of the linguistic and cultural aspects of the German speaking countries in Europe and will be capable of understanding and speaking on a variety of subjects, writing everything he/she can do orally.

Ger 201x, 202x, 203x (T), Second Year German Practicum, 1 cl hr/wk, 1 cr — This class is an extension of the regular second year class and provides the interested student with a broader analysis of grammar.

Ger 211, 212, 213 (T), Intermediate German Conversation, 2 cl hr/wk, 4 cr — In this advanced second year course the student will complete brief assignments dealing with many phases of German life. He/she will be exposed to and drilled in the conversational idiom and will be able to handle the affairs of a traveler in German speaking countries with ease. The student will be able to discuss a large number of subjects and will be particularly aware of cultural differences of importance to the traveler abroad. No writing will be required. Grade will be based on attendance, participation, and improvement in his/her ability to converse. This course may be taken out of sequence, concurrently with, or independent of Ger 201, 202, 203. The student should have completed at least one year of college German or the equivalent (to be determined by the instructor). This course is conducted entirely in German.

Spanish

Span 107 (T), First Year Spanish, 4/5 cl hr/wk, 4 cr — The student will learn the sound system of Spanish vowels, consonants, pronunciation, stress, and intonation patterns. He/she will learn to manipulate basic structures of noun-adjective agreement, the present tense, and pronoun usage. The student will do listening and speaking practice with tapes and short programmed reading and writing exercises and will be able to engage in simple Spanish without writing to his/her parent, school, family, and hometown.

Span 108 (T), First Year Spanish, 4/5 cl hr/wk, 4 cr — The student will increase basic vocabulary and learn to manipulate more basic structures in order to narrate in the past tense and command wishes to Spanish. The student will do directed listening, speaking, reading, and writing activities and practice. The student will be able to speak simply in Spanish about surroundings, activities, and relevant events.

Span 109 (T), First Year Spanish, 4/5 cl hr/wk, 4 cr — The student will intensify knowledge of vocabulary and additional basic structures including the future and conditional tenses, will begin to learn the subjunctive in order to communicate feelings in Spanish, will be able to understand and say in Spanish many of the things said everyday in English. The student will continue to learn to read and write simple Spanish and will begin to be informed of something of the civilization, culture, customs, and way of life of the Spanish-speaking peoples.

Span 160, 161 (T), First Year Spanish, 6 cl hr/wk, 6 cr — A two term sequence (winter-spring) which equals one full year. Course description same as for Span 107, 108, 109.

Span 199 (T), Special Studies (credit to be arranged)

Span 207 (T), Second Year Spanish, 4/5 cl hr/wk, 4 cr — The student will review basic vocabulary and structures of First Year Spanish and will do exercises and activities to express himself/herself understandably in and about a variety of situations. Prerequisite: Successful completion of Span 109 or the equivalent with instructor’s permission.

Span 208 (T), Second Year Spanish, 4/5 cl hr/wk, 4 cr — The student will discuss, read, and write in Spanish about subjects relevant to life and environment. He/she will begin to develop a cultural awareness of Spanish by learning to express and understand feelings through the use of the subjunctive in relation to previously learned structures.

Span 209 (T), Second Year Spanish, 4/5 cl hr/wk, 4 cr — The student will begin to develop fluency and proficiency through discussion, readings, and compositions. He/she will begin to initiate and sustain a Spanish dialog in order to cope with personal needs. Student will begin to develop
as a sense of language and cultural differences and similarities inherent in the Spanish idiom.

Span 217, 218, 219 (T), Intermediate Spanish Conversation 2 cl hr/wk, 2 cr — Provides an opportunity for the student who has attained a level of proficiency to intensify his practice primarily of understanding and speaking Spanish. Conducted in Spanish. May be taken independently or concurrently with Span 207, 208, 209 with instructor’s permission.

Speech

Sp 100 (T), Basic Communications 3 cl hr/wk, 3 cr — Students will investigate and define the basic structure of speech communication and will identify, design, prepare, present, and listen to different types of speech problems.

Students will demonstrate understanding and skill in oral communication through a variety of speaking activities including interpersonal and small group communication. Students will begin to develop their expertise in critical thinking, improve their self-concept, and gain an enlarged view of their own potential as communicators as well as respect for the attitudes, opinions, and feelings of others.

Sp 111, 112, 113 (T), Fundamentals of Speech, 3 cl hr/wk, 3 cr —

Sp 111: The student will prepare and present original speeches with emphasis on organization, outlining, and practice to increase student’s poise before an audience.

Sp 112: The student will study and practice clear thinking and organization, and persuasive speaking in greater depth.

Sp 113: The student will further practice persuasive speaking and study other types of speeches.

For all students regardless of speech objectives. Must be taken in sequence.

Sp 212 (T), Voice and Diction, 3 cl hr/wk, 3 cr — Study and practice of the principles of voice production and articulation. Intended to meet the special needs of teachers, radio and television speakers, and others who require special competence in speaking.

Sp 229 (T), Oral Interpretation, 3 cl hr/wk, 2 cr — The student will study techniques of vocal expression for the coordination of voice and body in the vocal interpretation of modern forms of literature including the essay, narration, poetry, and drama. Effective communication of meaning to others. For all students who wish to achieve ease in oral expression for special or general purposes. Prerequisite: Sp 111 or consent of instructor.

Sp 270 (T), Projects in Public Speaking, 2 cl hr/wk, 1 cr — The student will study and practice for participation in intercollegiate forensic activities: debate, oratory, interpretive reading, extemporaneous speaking, etc. Other speech projects are designed for non-competitive students. Course repeatable to four credit hours. Prerequisite: Sp 111 or permission of instructor.

Portland Community College offers classes in this subject area in locations throughout the community such as Book Reviews, Communication Between Men and Women, What to Say after Hello, New Testament and Its Historical Background, Danish, Dutch, French, German, Greek, Italian, Japanese, Norwegian, Portuguese, Russian, Spanish, Swedish, Freelance Writing, How to Tutor, Refresher Spelling and Grammar, Speed Reading, Writing Children’s Books, English Composition, Fundamentals of Speech, Reading Improvement, and English as a Second Language. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact:

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English

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Foreign Languages

Lenora Guinazzo
Marcia Marvin
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Speech

Gwenn Danielson
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**Mathematics and Science**

Courses in mathematics and science are offered for the student who will transfer to a four year institution, who is completing his/her general education requirement for an associate of applied science degree, or who is taking a course for personal enrichment.

See the College Transfer section of this catalog for a typical associate of arts or of science degree transfer program. To plan a major in any mathematics or science area, contact the Mathematics, Physical Science, or Life Sciences departments.

**Mathematics**

The Mathematics department of Portland Community College has developed a series of courses to fit the mathematical needs of all students enrolling at PCC. Some form of mathematics is needed by almost every student, but not every student should study a sequence in its entirety. The program at Portland Community College is designed so the student may profit from it at the level of his/her ability. It is important that each student recognize his or her level of achievement and proceed from that point. Mathematics instructors are available at all times to assist the student in planning a program to meet individual needs.

Many of the courses that are listed in this catalog have prerequisites. A student's background in mathematics plus an achievement grade are both used in placing a student in the appropriate course.

Courses offered provide full opportunity for fulfilling requirements and options for those who wish to continue their work in mathematics at a four year college or university.

**Mth 95 (T), Intermediate Algebra, 4 or 5 credits**
The student will study and demonstrate knowledge of the real numbers with emphasis on radicals and the four basic operations (addition, subtraction, multiplication, and division) involving these radicals; quadratic equations and the use of the quadratic formula; radical equations and inequalities involving real numbers; rational exponents; variations; cartesian products and the concept of graphing relations and functions; inverse relations and inverse functions with special emphasis on the linear function and the quadratic function; absolute value functions and the graphing of these functions, inverse functions, or relations of special functions, systems of linear equations and the graphing of such systems; and graphing of linear inequalities and systems of inequalities.

Mth 95 will transfer to Oregon state institutions as a four hour elective.

Students who have completed one year of high school algebra and one year of geometry with average or low grades should enroll in Math 0.500. Students with four years of academic math with lower average grades should enroll in Math 95. Any student who has not had a background of "modern" mathematics should enroll in Mth 4.202. The following are examples of problems in the course: Prerequisite: Mth 4.204 or consent of the department.

1. \( \sqrt{-64} = -4 \) (T F)
2. \( \sqrt{-32} = -3 \) (T F)
3. \((8)^{1/2} = ?
4. \( x^{2/3} - x^{1/2} = ?
5. \((a^{1/2} - b^{1/2})/(a^{1/2} + b^{1/2})
6. \text{Simplify: } \sqrt{9x^2 + 16x^2}
7. \text{Rationalize the numerator: } \sqrt{2} + \sqrt{3} \over \sqrt{3} - \sqrt{2}
8. \text{Find the solution set of the following: Domain is the set of real numbers.}
   a) \( \sqrt{3x} + 6 = x \)
   b) \( |x + 4| < 3 \)
   c) \( |2x - 5| > 10 \)
9. \text{Given } F(x) = \frac{3x}{4} + 6\)
   a) F(4/3) = ?
   b) What is the slope of the graph?
   c) What is the y-intercept of the graph?
10. \text{Given the points (6,8) and (2,3);}
   a) What is the slope of the straight line determined by these two points?
   b) What is the equation of the straight line determined by these two points?
11. \text{Find solution set of the following?}
   \[ \begin{align*}
   2x + 4y - 5 &= 0 \\
   x - 2y - 15 &= 0
   \end{align*} \]
12. \text{Given:}
   \( f = \{(x,y) | y = 4(x-3)^2 + 5 \}
   a) What is the maximum or minimum value of the function?
   b) What is the equation of the axis of symmetry?
   c) What are the coordinates of the points where the maximum or minimum value occurs?
   d) What is the equation in form}
   \[ y = ax^2 + bx + c \]

**Mth 101 (T), College Algebra, 4 or 5 credits**
The student will study and demonstrate knowledge of relations of one and two variables with emphasis on the conic sections, polynomial functions, rational functions, exponential functions, logarithmic functions, series, sequences, math induction, and binomial theorem, complex numbers, and matrices.

Recommended for the student who has had two years of algebra and one year of geometry with high or very high grades, or four or five years of academic mathematics with average achievement. Prerequisite: Mth 95 or consent of the department.

Examples of some of the problems in this course are:

1. \text{Name the graph of each of the following relations:}
   a) \( 3x^2 + 3y^2 = 5 \)
   b) \( 4x^2 - y^2 = 18 \)
   c) \( y = x^2 + 7x + 3 \)
2. \text{Multiply: (4 + 3i) (1 - i)}
   \text{Give answer in } a + bi \text{ form.}
3. \text{Given:}
   \( g(x) = 2x^4 + 3x^3 - 14x^2 - 15x + 9 \)
   a) \( \text{State the maximum number of turning points on the graph.} \)
   b) \( \text{State the bounds on the number of positive and the number of negative real zeros of the function.} \)
   c) \( \text{State the least nonnegative integer that is an upper bound for the set of real zeros.} \)
4. \text{Determine any vertical, horizontal, or oblique asymptotes of the graph of}
   \( \left\{ (x,y) | y = \frac{3x + 6}{x^2 + 3x + 2} \right\} \)
5. \text{Log}_4 x = 3; x = ?
6. \text{What is the characteristic of} \log_{10} 0.00214?\)
7. \text{Divide (8-4i) by (6 + 3i). Write the answer in form } a + bi \text{ where } a \text{ and } b \text{ are real numbers.}
8. \text{Find the twelfth term in the arithmetic progression}
   \[ 2, 2\frac{1}{2}, 3, \ldots \]
9. \text{Find the sum of the infinite geometric series}
   \[ 1 - 1 \over 81 \over 54 \]
10. \text{Expand: } (x - 3)^7
and solutions of the right and oblique triangles. The emphasis of the course will be on analysis. Prerequisite: Math 101 or consent of the department.

Math 103 (T), Probability and Statistics, 4 cr hrl/wk, 4 cr—The student will study and demonstrate knowledge of methods of descriptive distribution of measurements, population, random variables, probability, distributions, and statistical inference. Prerequisite: Math 101 or consent of the department.

Math 106 (T), Elementary Calculus, 4 cr hrl/wk, 4 cr—Introductory calculus primarily for business, economics and social science majors. The student will study and demonstrate knowledge of the basic concepts of calculus and their applications to the biological and social sciences. Prerequisite: Math 101 or consent of the department.

Math 110 (T), Analytic Geometry, 4 cr hrl/wk, 4 cr—The student will study and demonstrate knowledge of points, lines, equations and locus of circular parabola, ellipse, hyperbola; algebraic and transcendental curves; and parametric and polar equations. Prerequisite: Math 102 or consent of the department.

Math 114, 115, 116 (T), Mathematics in Business Applications, 3 cr hrl/wk, 3 cr—Math 114: The student will study and demonstrate knowledge of algebra and trigonometry; it is beneficial to have studied mathematics from the "modern" viewpoint. The student with a "modern" viewpoint, "or consent of the department.

Math 192: After studying some ideas of number theory, the student will apply these ideas to numerical operations on the set of positive rational numbers ("fractions" and "decimals") and applications of these operations using number sentences. Appropriate topics of geometry are also included from an inductive point of view. Math 193: One of the topics include the study of integers, additional topics in geometry, measurement, some topics of elementary algebra, the existence of irrational numbers, and simple probability. Sequence is applicable to science group requirements for graduation from Portland State University. Prerequisite: One year of high school geometry or Math 4.204 for Math 191, Math 191 for Math 192, Math 192 for Math 193, or consent of the department.

Math 200, 201, 202, 203 (T), Calculus Analytic Geometry, 4 cr hrl/wk, 4 cr—Math 200: The student will study and demonstrate knowledge of functions, the basic concepts of limit and continuity, differentiation with applications to rates of change, maxima and minima, curve sketching, and an introduction to the definite and indefinite integral.

Math 201: The student will study and demonstrate knowledge of differential and integral calculus of the logarithmic, exponential, trigonometric, and hyperbolic functions with applications; further techniques of integration with application; and analytic geometry related to the conic sections, polar coordinates, and parametric representatives.

Math 202: The student will study and demonstrate knowledge of sequences and series and their impact upon the calculus; L'Hospital's rule and improper integrals; vectors and calculus of vectors with applications to tangent, velocity, acceleration, speed, and angular acceleration problems.

Math 203: The student will study and demonstrate knowledge of the calculus of several variables, including gradients, normal vectors, work and line integrals, and multiple integrals; centroids; cylindrical and spherical coordinates with applications.

The student needs background in college algebra and trigonometry; it is beneficial to have studied mathematics from the "modern" viewpoint. The student with four or five years of academic mathematics in high school with very high achievement may be able to start with Math 200. Prerequisite: Math 102 or consent of the department. For Math 200, the preceding course for Math 201, Math 202, Math 203.

Math 0.500, Math III, Introduction to Intermediate Algebra, 4/5 cr hrl/wk, 4 cr—The student will review elementary algebra including factoring, operations on the integers and rational numbers; operations on rational expressions, solving equations and inequalities in one variable, and a review of verbal problems.

The student will study and demonstrate knowledge of the real numbers, arithmetic of radicals, rational exponents, polynomials over the real numbers, the use of the quadratic formula, equations involving a single radical, Cartesian products and graphs, equations of two variables, relations and functions, variation, graphing simultaneously equations, mathematical solutions of simultaneous equations, verbal problems involving two variables, and solving systems of inequalities by graphing. Prerequisite: One year high school algebra, Math 4.204.

Math 2.128, Computer Math and Logic, 5 cr hrl/wk, 5 cr—The student will study and demonstrate knowledge of real numbers, number bases, mathematical logic involving propositions and their truth values, truth tables, and theorems, matrices, and basic operations on matrices, Fortran notation and summation notation, and Boolean algebra and linear programming. Prerequisite: Math 4.204, one year of high school algebra from a "modern" viewpoint, or consent of the department.

Math 2.308, Business Mathematics, 4 or 5 cr hrl/wk, 4 cr—The student will study and demonstrate knowledge of the applications of arithmetic to a variety of problems found in many entry jobs in the business field, including simple and compound interest, payroll preparation (hourly, incentive, and commission pay methods and payroll deductions), pricing (including markup and discount), invoice preparation, trade discounts, cash discounts, property taxes, depreciation (straight line, declining balance, and sum-of-the-year's-digits methods), fire insurance, simple statistics, and graphs. Prerequisite: Math 4.200 or consent of the department. Mathematics test required.

Math 2.310, Business Mathematics II, 3 cr hrl/wk, 3 cr—The student will study and demonstrate knowledge of advanced financial business operations, computing ownership interests, long term borrowing, insurance and graphs plus other business problems offered by the instructor. Prerequisite: Math 2.308 or consent of the department.

Math 2.404, Business Statistics, 5 cr hrl/wk, 5 cr—The student will study and demonstrate knowledge of statistical concepts such as index numbers, frequency distributions, measures of variability, normal curve of distribution, sampling error theory and time series with their graphical representations. The development of critical thinking is emphasized rather than mathematical manipulation. For students in business data processing or other business related programs. Prerequisite: One year of high school algebra, Math 4.204, or consent of the department.

Math 4.200, Basic Mathematics, 4 or 5 cr hrl/wk, 4 cr—The student will study and demonstrate knowledge of the basic concepts of numbers and the Hindu-Arabic system of numeration, the basic operations (addition, subtraction, multiplication, and division) with respect to the whole numbers and rational numbers (fractions or decimals) percent and the application of percent to practical situations.

For students who need a thorough review of the basic arithmetical processes. Math test required.
Examples of problems in this course:

1. \( 389 \div 766 \)
2. \( 498 \div 252 \)
3. \( 4 \div 5 + \frac{1}{3} \)
4. \( 9 \div 35 \frac{11}{12} \)
5. \( 946.3 \div 857.39 \)
6. \( 504 \div 90 \)
7. \( 16 \div 30 \frac{1}{4} \times 16 \)
8. \( 0.4 \times 4.0 \)
9. \( 253 \)
10. \( 1.461 \times 3.6938 \) (placed decimal)
11. \( 1.24 \times 100 \)
12. \( 75 \% \)
13. \( \frac{4}{6} \), \( \frac{5}{3} \)
14. \( \frac{3}{5} \)
15. \( 10 \% \)
16. \( 0.18934 \)
17. \( 12 \% \)

Mth 4.200, Basic Mathematics (Machinist, Auto Mechanics, Welders, Nurses, Cooks, Medical Record Technicians, Etc.), 2, 3, 4, 5 hr/wk, 2, 3, 4, 5 cr—The student will study and demonstrate knowledge of the arithmetic processes of the whole numbers as well as rational numbers, decimals, percents, and conversion of units in the particular curriculum that he/she is studying.

Mth 4.202, Mathematics I, 4 or 5 hr/wk, 4 cr—The student will study and demonstrate knowledge of the basic operations on whole numbers and integers, the "modern language" of algebra, the concept of sets, the application of these sets to the development of the mathematical structure of whole numbers and integers, fundamental operations on equalities, inequalities, and absolute values and applied problems. For the student who has had no previous instruction in algebra, needs a review of elementary algebra, or has had previous algebra courses but has not been exposed to the "modern" concept. Prerequisites: Mth 4.200 or consent of the department. Mathematics test required.

Examples of problems in this course:

Given:

\[ \begin{align*}
\text{Set } A &= \{1, 2, 3, 4, 5\} \\
\text{Set } B &= \{2, 3, 4, 5, 6, 8, 9\} \\
\text{Set } U &= \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}
\end{align*} \]

1. \( A \cup B = \) 
2. \( A \cap B = \) 
3. \( [4, 5] \subseteq A \) (true or false) 
4. \( A \cap B = \) 
5. \( [2, 3] \) 
6. \( (4x^2 - 3x) = ? \)
7. \( (x + 2)(x - 3) = ? \)
8. \( (x - 2)(2x + 3) = ? \)
9. \( (4 - 5) = ? \)
10. \( (x + y) = ? \)
11. \( 1.24 \times 100 \)
12. \( 75 \% \)
13. \( \frac{3}{4} \times \frac{5}{6} \)
14. \( 5x + 10 = 3x - 20 \)
15. \( (x - 3)(x - 4)(x - 5) = 0 \)
16. \( -5x < 15 \)
17. \( 3x + 5 = ? \)
18. \( 2m + 3m \frac{1}{5} \)
19. \( x^2 - 5x + 6 \)
20. \( 6a^2 + 7a + 2 \)

Mth 4.204, Mathematics II, 4 or 5 hr/wk, 4 cr—The student will study and demonstrate knowledge of rational numbers, equalities, inequalities, absolute value, other representations of rational numbers, scientific notation, verbal problems, and the basic operations on rational expressions. Prerequisite: Mth 4.202 or consent of the department.

Examples of problems in this course:

Reduce:

1. \( \frac{3xy}{6x(x-y)} \)
2. \( \frac{x^2 + x}{x} \)
3. \( \text{The least common multiple of } ab^2, a^2b, ab^2 \)

Combine:

4. \( \frac{2m}{s} \times \frac{3m}{2s} \)
5. \( \frac{x}{x^2 + y^2} - \frac{x}{x + y} \)

Multiply:

6. \( \frac{a^2 + 2ab + b^2}{a + b} \)

Simplify:

7. \( \frac{1}{x} \times \frac{1}{x} \)
8. \( \frac{1}{x} + \frac{3}{2} \)
9. \( \frac{1}{x} < -3 \)
10. \( x^2 - 7x + 12 = 0 \)
11. \( x^2 + 10 + 2x = 0 \)
12. \( (15x - 1)(6x + 5) = 0 \)
13. \( 3x^2 + \frac{5}{4} \) \( \frac{x^2}{6xy^2} \)
14. \( 4.545 \)

15. Solve using scientific notation:

\( (340) \times (0.0035) \)
\( (5000) \times (0.017) \)

16. A firm has an alloy of copper and tin that contains 10 percent tin and an alloy of copper and tin that is 25 percent tin. If the firm wishes to produce two tons of copper and tin alloy that is 20 percent tin, how much of the 10 percent alloy must be used?

17. A man invested $10,000 in two different mutual funds. He made a profit of eight percent from one of his investments but lost three percent in his other investment. If his total income from both investments for the year was $470, how much did he invest in each mutual fund?

Mth 4.205, Pre-Tech Mathematics, 10 hr/wk, 10 cr—An accelerated course for the technical or liberal arts student combining Math 4.202 and 4.204 into one quarter's work. Same prerequisites as Math 4.202. Mathematics test required.

Mth 4.206, Plane Geometry, 4 or 5 hr/wk, 4 cr—The student will study the basic concepts and demonstrate knowledge of plane (two space) geometry, including critical thinking and deductive reasoning, elementary constructions, properties of triangles, properties of parallel and intersecting lines, ration and proportion, similar polygons, areas and perimeters, special
right triangles, circles and their properties, and areas and volumes of plane and solid figures. For the student who has not studied geometry or the student who had below average achievement in high school geometry and plans to continue in a mathematical sequence. Prerequisite: One year of high school algebra, or consent of the department.

Mth 6.115, Electrical Mathematics, 4 cl hr/ wk, 3 cr—The student will study and demonstrate knowledge of fundamental concepts of mathematics including function, rate and limits, derivatives, differentials, integrals and definite integrals, trigonometric function, logarithmic functions and exponential function, hyperbolic function, partial derivatives, double integrals, and complex analysis. The student will also demonstrate knowledge of the application of mathematics to physical problems. Prerequisite: Mth 4.204, one year of high school algebra, or consent of the department.

Mth 6.261, Technical Mathematics I, 4 or 5 cl hr/wk, 3 cr—The student will study and demonstrate knowledge of logarithms and their uses; polar and rectangular coordinates; trigonometric functions; right triangles; oblique triangles; the laws of sines, cosines, tangents, half angles; areas of triangles; applications of trigonometry; vectors and their applications; trigonometric functions; sine and cosine function; natural logarithm function; sum of areas, calculation of volumes, and applications of trigonometric functions. Prerequisite: Mth 6.261 or consent of the department.

Mth 6.262, Technical Mathematics II, 4 or 5 cl hr/wk, 3 cr—The student will study and demonstrate knowledge of quadratics and cubic equations; ratio, proportion, and variation; binomial theorem; arithmetical and geometric progressions; exponential and logarithmic functions and their applications; complex numbers; and vector algebra. Prerequisite: Mth 6.261 or consent of the department.

Mth 6.263, Technical Mathematics III, 4 or 5 cl hr/wk, 3 cr—The student will study and demonstrate knowledge of simultaneous quadratic equations; ratio, proportion, and variation; binomial theorem; arithmetical and geometric progressions; exponential and logarithmic functions; right triangles; oblique triangles; the laws of sines, cosines, tangents, half angles; areas of triangles; applications of trigonometry; vectors and their applications; trigonometric functions; sine and cosine function; natural logarithm function; sum of areas, calculation of volumes, and applications of trigonometric functions. Prerequisite: Mth 6.261 or consent of the department.

Mth 6.270, Technical Mathematics IV or 5 cl hr/wk, 3 cr—The student will study and demonstrate knowledge of graphical methods of differentiation; process of differentiation including rules of change; summation of areas, calculation of vector quantities and scalar functions; graphical introduction to derivatives and maximum-minimum values; function of a function; sine and cosine function; natural logarithm function; product, quotient and repeated differentiation; and an introduction to integration including the indefinite integral, the constant of integration, the differential of a function, analysis of motion, areas under graphs, definite integral, and volume by integration. Prerequisite: Mth 6.261 or consent of the department.

Science

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 the areas of modern life.

Botany
Bot 201, 202, 203 (T), Botany, 3 cl, 3 lab hr/wk, 4 cr—A three quarter introductory course for liberal arts majors. The student will study and examine the principles of living organisms, both plant and animal. Emphasis is on functions and structures rather than structures with special reference to biological problems. The course is individualized in modular form via the audio-tutorial system. Each student is responsible for his/her own learning pace of modular objectives during four hours in the learning center (LC) and one hour in the general assembly session (GAS).

Bi 211, 212, 213 (T), Biology, 3 cl, 3 lab hr/wk, 4 cr—A three quarter introductory course for students interested in the biological sciences as their major field of interest. Biology majors, pre-med, forestry, microbiology, wildlife science, fisheries, and other students with related interest are recommended to take this course.

The course will introduce concepts in animal and plant physiology and morphology and to provide a coordinated overview of the sciences as they relate to the areas of modern life.
course. The course is recommended to stu-
dents interested in agriculture, forestry, and plants in general.

Botany 201: Elements of Rocks and Minerals.

Botany 202: Quantitative Analysis, 3 cl, 6
lab hr/wk, 5 cr—A basic course in quantita-
tive chemical analysis. The student will study and demonstrate
knowledge in the classroom and laboratory in the areas of: volumetric
analysis - acid-base equilibrium, precipitation
and gravimetric analysis, and instru-
mental analysis — pH determination,
optical absorption analysis, and related
topics. Prerequisite: Ch 106, 205, or con-
sent of department.

Ch 234 (T), Quantitative Analysis, 3 cl, 6
lab hr/wk, 5 cr—A basic course in analyti-
cal chemistry. The student will study and demonstrate knowledge in the classroom and laboratory and in the areas of: volumetric
analysis - acid-base equilibrium, oxidation
reduction equilibrium, precipitation
equilibrium, gravimetric analysis, and instru-
mental analysis — pH determination,
optical absorption analysis, and related
topics. Prerequisite: Ch 106, 206, or con-
sent of department.

Chemistry

Ch 104, 105, 106 (T), General Chemistry, 3
cr, 2/1/1 rec, 3 lab hr/wk, 5 cr—An intro-
duction to general chemistry in which the student will study and demonstrate his/her
knowledge of:

Ch 104: The structure of matter, the prop-
eties of elements and compounds, and
the laws governing gas behavior;

Ch 105: The behavior of matter in solutions,
organic and biochemical;

Ch 106: Molecular, acid-base, solubility
equilibrium, nuclear chemistry, and basic
organic and biochemical.

For science majors with little or no previous
background in chemistry. Sequence fulfills
prerequisites for Quantitative Analysis (Ch 234), Organic Chemistry (Ch 226, 227),
and general chemistry for engineering stu-
dents. Prerequisite: High school algebra,
equivalent, or consent of the department.

Math 95 taken concurrently is re-
commended.

Ch 204, 205, 206 (T), General Chemistry, 3
cr, 1 rec, 3 lab hr/wk, 5 cr—General inor-
ganic chemistry for chemistry and certain
other science majors. In this course the student
will study and demonstrate know-
ledge of basic concepts of matter and
energy, the structure of atoms, chemical
nomenclature, specific heat, thermal stochiometry,
kinetic theory of matter, acids and bases,
solutions, oxidation - reduction reactions,
energy kinetics and equilibrium, descrip-
tive inorganic chemistry, basic organic and
biochemistry, and other related chemistry
topics that help the student achieve a good
foundation in general inorganic chemistry.

This course is designed to fulfill any general
chemistry requirements for the student
with some prior science background. Rec-
commended for chemistry majors, labora-
tory oriented science majors, and prepro-
fessional majors in medicine, dentistry, medicine, and veterinary medicine. Prerequisite: Ch 204, one
year of high school chemistry and algebra or
their equivalents, or the consent of the depart-
ment; Ch 205, a passing grade in Ch 204; Ch 206, a passing grade in either Ch 205, or Ch 106.

Ch 226, 227 (T), Organic Chemistry, 3 cl, 6
lab hr/wk, 5 cr—An introductory course in
organic chemistry. The student will study and demonstrate knowledge in the class-
room and laboratory of aliphatic com-
pounds — alkenes, alkynes, aldehydes,
ketones, acids, esters, carboxydrates, ni-
trogen compounds — amines, amides, and
proteins. Prerequisite: Ch 106, 206, or con-
sent of department.

Geology

G 201: Minerals, igneous activity and igneous rocks, weathering and soils, sedi-
mentary rocks and metamorphic rocks, and erosion and deposition by mass movement and streams. No pre-
requisite.

G 202: Groundwater; erosion and deposi-
tion by glaciers, wind, and oceans; earth's
interior, deformation of the earth; and
mineral deposits. Prerequisite: G 201, G
204.

G 203: Earth history and past life with em-
phasis on North America. No prerequisite.

G 204, 205, 206 (T), Geology Lab, 3 lab hr/
wk, 1 cr—Laboratory work to accom-
pany G 201, 202, 203.

G 207 (T), Introduction to the Geology of the Pacific Northwest, 3 cl, 4 hr/
wk, 3 cr—An introductory course to the scenic regional
geology of the Pacific Northwest with em-
phasis on Oregon geology and develop-
ment of the present landscape. The student will study and demonstrate knowledge of
basic geologic principles, earth materials,
and the geology of the Pacific Northwest
provinces. No prerequisite.

G 291 (T), Elements of Rocks and Minerals,
2 cl, 3 lab hr/wk, 3 cr—An introductory
course in the study of rocks and minerals.
The student will study and demonstrate knowledge of the classification, origin, and identification of common rocks and miner-
als. Recommended for persons interested
in rock and mineral collecting, mining, and
prospect. No prerequisite.

Physical Science

GS 104, 105, 106 (T), Physical Science, 3 cl,
2 lab hr/wk, 4 cr—The course provides a broad
background in physical science for the non-science major. The student will study and demonstrate proficiency in (a)
using basic vocabulary, (b) identifying rela-
tionships, and (c) relating ideas in select-
ed topics of physical science. Topics pre-
sented will include an introduction to:

GS 104: The earth as a planet; weather and
c currents; the oceans; sound; the sun;
and meteorology or oceanography.

GS 105: Geology, geologic processes, and
formation. No credit if the student has earned four or more quarter hours in geol-
ogy or earth science.

GS 106: Astronomy, solar systems, stars,
and galaxies. No credit if the student has earned four or more quarter hours in astron-
omy.

Each term of the course will also include
topics of physics and chemistry which apply to the areas under study. No pre-
requisite. These courses may be taken out
of sequence.

Physics

Phy 201, 202, 203 (T), General Physics, 3cl
hr/wk, 3 cr—The student will study and demonstrate knowledge of mechanics, heat, light, sound, electricity, magnetism,
and modern physics. Introductory physics
for premedical and preprofessional students and students of biology and geology, etc. Pre-
requisite: Mth 101 (College Algebra) pre-
viously or taken concurrently with Phy 201,
Phy 201 for Phy 202, and Phy 202 for Phy
203, or consent of the department.

Phy 204, 205, 206, General Physics Labora-
tory, 3 lab/hr/wk, 1 cr—Laboratory work to
accompany Phy 201, 202, 203.

Phy 211, 212, 213 (T), General Physics,
5 cl/hr/wk, 4 cr—The student will study and demonstrate knowledge of mechanics, heat, light, sound, electricity, magnetism,
and modern physics; for students majoring
in engineering, physics, and chemistry.

Phy 211 for Phy 202, and Phy 202 for Phy
203, or consent of the department.

II, III, 3 lee, 3 lab/hr/wk, 4 cr—This course is
designed for the technology student. The
student will study and demonstrate know-
ledge of:

Sci 36.370: Fundamentals of measurement,
vectors, motion, momentum, work, ma-
"ine, and angular vectors. Prerequisite:
Mth 6.261 or consent of the department.
Sci 36.371: Heat, optics, sound. Prerequi-
site: Sci 6.370

Sci 36.372: Electricity and magnetism. Pre-

ZoolS

Z 201, 202, 203 (T), Zoology, 3 cl, 3 lab/hr/
wk, 4 cr—The student will survey the ani-
mal kingdom, emphasizing the morpholo-
ogy, genetics, physiology, and evolution of
animals. Generally, the course will consist of three one-hour lectures and one three-
hour laboratory. Some concepts and part of the
laboratory experiences will be presented
via audio-tutorial modules.

Portland Community College offers classes
in this subject area in locations throughout
the community such as Bayside, Lapi-
dary Workshop, Science, Basic Principles,
and Wild Mushroom Identification. New
education programs in the community are
planned each quarter. For a complete sche-
dule of times and locations, call 244-6111.

Course Numbering and Coding

General studies courses are designated by
a two- or three-digit number [e.g. Pay 201(T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RM5.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.

For more information contact:
Robert Palmer
Dean
Industrial Technology

Arthur Stevens
Dean
Life Science and Health Division

Donald Creek
Department Chairman
Life Science

Robert Dixon
Department Chairman
Physical Science/Electronics

Instructors:

Mathematics
Russel Abraham
Dick J. Clark
Patrick L. Glock
Derek I. Down
Troy Downey
Jean H. Eagleson
Rod E. Espey
Bobby Finnell
Vernon R. Hood
Cecil C. Jenkins
Henry R. Lind
Hal J. Medici
George D. Montag
Richard J. Newman
James V. Rogers
Carolyn B. Thompson
Millicent Williamson
James L. Wolfe

Anatomy and Physiology
Lucia Greco
Douglas Milligan
Bette Wald

Biology
Jerry Button
Donald Creek
Donald Defler
Glea Neidert
Jane Snively
Ted Swensen
Bette Wald

Chemistry
Ellis H. Adler
James A. Anderson
Dele Burger
R. Ray MacDonald
Barbara Meyer
Mary E. Richards

Geology
Rollins Burnam

Physical Science
Rollins Burnam
Robert Ewing
Barbara Meyer
David Porter

Physics
Dean E. Wilson
Physical Education

Students wishing to participate in physical education have three program options:

1. A physical education professional program for those students wishing to transfer to a four-year institution to complete work on a bachelor's degree in physical education.

2. Courses which will fulfill the physical education requirements for an associate of arts or science degree and are transferable to four-year institutions.

3. An activities program whereby students may receive non-transferable credits for participating in activities. The activities may be used to satisfy general education requirements for the associate of applied science degree.

Professional Program

Majors in physical education must begin their course work in professional activities (PE 131, 194, 195, 294, 295) during the first year in order to complete a baccalaureate degree program in four years.

Guidelines:

1. A student may receive only one credit per term.

2. A student may receive only one validation per day.

3. One hour of participation earns one unit of credit.

4. The total of 33 hours earns the student one credit.

5. This credit may be applied to the associate of applied science degree.

HE 250 (T), Personal Health, 3 cr — The student will become acquainted with some of the personal health problems of men and women and their affect on family life. Includes study of mental health, physical fitness, nutrition, sexuality, communicable and degenerative diseases, drugs, safety and environmental hazards. Satisfies the requirement in health education for men and women.

HE 252 (T), First Aid, 3 cr — The student will study first aid and safety procedures for a wide variety of injuries or illnesses. Successful completion of the course meets certification standards of the American Red Cross.

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Recreation

The recreation program at Portland Community College is designed for those students wishing to transfer to a four year institution, for students seeking entry level skills in the field of recreation, and for students taking recreation courses for their personal enjoyment.

Job Description—A graduate of the recreation program may be employed by voluntary youth-serving agencies, convalescent homes, churches, armed forces, and local, state, and federal governmental units to lead and instruct participants of all ages in a variety of recreational programs, including arts and crafts, sports, outdoor recreation, and cultural activities. Requires pleasant personality, good health, neat appearance, enthusiasm, skills in a variety of recreational activities, and a genuine desire to involve people in meaningful leisure activities.

Opportunities—Fair to good—demand for leisure services to people expected to increase.

Potential Earnings —Approximately $6,000 starting.

PCC Program—Prepares students for beginning positions of leadership under supervision in the field of recreation and leisure services. Upon completing this program, the student receives an associate of science or of arts degree and may transfer to an accredited four year institution to continue professional preparation for a career in recreation leadership and park management.

<table>
<thead>
<tr>
<th>Dept Crs</th>
<th>Course Title</th>
<th>Class/Lab Cr No Hrs/Wk Hr</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
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<td><strong>First Term</strong></td>
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<td>Wr 111</td>
<td>English Composition</td>
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<td>Bi 101</td>
<td>General Biology or</td>
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<tr>
<td>GS 104</td>
<td>Physical Science</td>
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<tr>
<td>RM 251</td>
<td>Professional Foundations of Recreation</td>
<td>3 3</td>
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<tr>
<td>PE 180/190</td>
<td>Education 1 Elective 2</td>
<td>3 3</td>
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<td><strong>Totals</strong></td>
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<td><strong>Second Term</strong></td>
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<td>Wr 112</td>
<td>English Composition II</td>
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<tr>
<td>Bi 102</td>
<td>General Biology or</td>
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<td>GS 105</td>
<td>Physical Science</td>
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<tr>
<td>Sp 111</td>
<td>Fundamentals of Speech</td>
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<td>Art 110</td>
<td>Recreational Use of Arts and Crafts</td>
<td>4 2</td>
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<td>HE 250</td>
<td>Personal Health</td>
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<td>PE 180/190</td>
<td>Education 1 Educate 2</td>
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<td><strong>Third Term</strong></td>
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<td>Wr 113</td>
<td>English Composition III</td>
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<td>Bi 103</td>
<td>General Biology or</td>
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<td>GS 106</td>
<td>Physical Science</td>
<td>3 2 4</td>
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<td>PE 234</td>
<td>Reays and Games of Low Organization</td>
<td>3 1</td>
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</tbody>
</table>

Art 111 | Recreational Use of Arts and Crafts | 4 2 |
PE 180/190 | Educational Elective 1 | 3 1 |
RM 251 | Professional Foundations of Recreation, 3 cl hr/wk, 3 cr—The student will study and discuss concept of community recreation, scope of recreation, and leisure in American life, the role of recreation, parks, and sports in human experiences and the structure of community living.
RM 252 | Recreation Leadership, 3 cl hr/wk, 3 cr—The student will study and discuss the role of the recreation leader with emphasis upon methods of working with individuals and groups. Leadership techniques utilizing various leisure activities in public and voluntary agency settings will be discussed, observed, and practiced as a means of developing leadership skills.
RM 290 (T), Camp Counseling, 3 cl hr/wk, 3 cr—Introduction and orientation to counseling in camps. The student will examine values and objectives of organized camps, understanding campers, knowledge and understanding of camp programs and staff responsibilities.
RM 291 (T), Outdoor Recreation—Family Camping, 2cl hr/wk, 2 cr—An introduction to outdoor recreation for the family through camping. The student will examine the values of family camping; explore where to go in the Pacific Northwest; learn to select activities, equipment, clothing, and food. Includes application of knowledge and skills on a weekend camping trip for the whole family.
RM 295 (T), Specialized Recreation for the Mentally Retarded, 3 cl hr/wk, 3 cr—This course is basic to a work training program in the field of specialized recreation and is designed to provide the student with information relative to the programming and teaching of recreational activities designed to meet the needs of the exceptional individual. Working with developmentally disabled individuals is included in this course. Prerequisite: RM 251, Professional Foundations of Recreation, or permission of the instructor.

Portland Community College offers classes in this subject area in locations throughout the community such as: Aikido, Ballet, Ballroom Dancing, Belly Dancing, Co-Ed Fitness and Volleyball, Community Recreation, Cross Country Skiing, Fencing, Flyfishing, Ballroom Dance, Gymnastics, Horsesback Riding, Jazz and Creative Dance, Karate, Kayak Technique, Kinder Gym, Morning Exercise Class, Movement Dynamics, Old Time Pattern Dance, Polynesian Dance, Salmon Fishing, Self Defense for Women, Ski Conditioning, Slim and Trim, Snowshoeing, Square Dancing, Swimming, Tennis, Trampoline, Volleyball, Wic Outfits in Motion, Wilderness in Winter, Wilderness Skills, Yoga. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 244-6111.

For more information contact: Arthur Stevens Diane Williams MacDonald Department Chairman Dr. Jean Breck Head Instructor - Recreation Instructors: Terry Boatman H. Jean Breck Diane Buckiewicz Grant Davies Mary Eick Lynn Harbertson Mary Ann Humphrey Diane LoVerso Mason McCoy S. Duane Owens Betty Rankin Joan Sullivan Valdus Vitums Karl vonTagen
Courses in the social sciences are offered for the student who will transfer to a four-year institution, who is completing his/her general education requirement for an associate of applied science degree, or who is taking a course for personal enrichment.

See the College Transfer section of this catalog for a typical associate of arts or sciences degree program. To plan a major in a social science area, contact the History or Behavioral Science departments or a PCC counselor.

**Anthropology**

**Ath 101, 102, 103 (T), General Anthropology, 3cl hr/wk, 3cr**

**Ath 101:** The student will study and discuss physical anthropology (man’s biological evolution) within the modern perspective of genetics in order to understand his fossil record and present-day races of mankind.

**Ath 102:** The student will use the archeological record of man to reconstruct the “fossil cultures” of the Pleistocene; emphasis is placed on the prehistory of those agricultural revolutions that underlay the new and old world civilizations.

**Ath 103:** The student will study and discuss human cultures today and the forces operating within the organization of any society from the most primitive to the most technologically advanced. The student will use ethnographic data from several cultures to analyze technology, economy, social organization, government, religion, and art.

**Ath 199 (T), Man and His Environment, 3cl hr/wk, 3cr—I. Ecological Aspects: The biocultural and cross-cultural themes of human ecology (in concept as well as in specific case studies) will be used to look at modern industrial society and its worldwide environmental problems and to discuss questions like: can science and technology lead to a “good life?” Are we overpopulated? What will the environmental issues of 1980’s be like?

II. Energy Consideration: Energy will be defined in physical-chemical as well as ecological terms and then related to various human uses of energy. Different cultural patterns of energy production and consumption will be traced through representative peoples throughout the world to determine the net efficiency of various economic systems from the most primitive to the most highly mechanized. What is energy and how is it utilized by various cultural systems for survival? Where has the energy come from for the fantastic technological advances of the last hundred years which we have all enjoyed in western civilization? Are these “advances” here to stay or are they transient?

III. Productivity: People, wherever they live and whatever level of technological knowledge they possess, have productive capacities that are emphasized in one fashion or another. Material objects, always distinctive of a particular culture, indicate the nature of the productive capacity of the people who produce them. Productivity can be measured in ways other than the material objects of a GNP. In what ways does non-material culture have a measurable “product?” Can it be bought and sold on the open market under the same laws of supply and demand? If not, what are the new rules, if any, for “somatic easements,” or “owning the air we breathe.” What are the “economics of ecology” in our own and other cultures?

**Ath 199 (T), Maritime Ethnology, 3 cl hr/wk, 3 cr—The aim of this course is to acquaint the student with a somewhat neglected segment of society: seamen and fishermen, and people in related occupations. Stressing the historical, social, and cultural aspects of life among these people, it is a supplement to the practical orientation of Marine Engineering Technology. An introduction to the history and nature of maritime ethnology and its related disciplines, to life in coastal settlements, to the occupation of boatbuilding, to the history and culture of fishing and seafaring, and to the network of relationships among these related industries.

**Ath 207, 208, 209 (T), Cultural Anthropology, 3 cl hr/wk, 3 cr—In this course the aim is to clarify the meaning of culture, to present its diverse forms and degrees of sophistication, and to discuss the processes of its growth and expansion. Culture is viewed as a medium through which man adapts to his social and natural environment. Courses need not be taken in sequence.

**Ath 207: Divisions of anthropology; concept of culture; human ethnology; significance of language in the acquisition of culture, social, political, and religious organization.

**Ath 208: Introduction to world ethnography in which comparative cultural analysis of band, tribe, state, peasant, and community levels of sociopolitical integration will be utilized.

**Ath 209: Process of cultural growth and change; applied anthropology; development of anthropological theory. Ethnographic techniques will be utilized to examine the changing culture of a complex society.**

**Economics**

**Ec 201, 202, 203 (T), Principles of Economics, 3cl hr/wk, 3cr**

**Ec 201:** The student will study history of the market systems, nature of the present U.S. economy, alternative economic systems.

**Ec 202:** Macroeconomics—The student will study the overall economy including basics of causes and problems of recession, inflation, unemployment, growth, money, and fiscal policy.

**Ec 203:** Microeconomics—The student will study individual and the economy including basics of the price system, production, distribution, market concentration, international trade.

**Ec 201, 202, and 203 should be taken in sequence.**

**Ec 115 (T), Outlines of Economics, 3 cl hr/wk, 3 cr—Through selected readings and class discussions, the student will survey the principles of economics, government economic policies, and economic institutions. The course emphasizes topics of particular interest to each class. Economics 115 may not be substituted for Economics 201, 202, or 203. No prerequisite necessary.**

**Geography**

**Geo 105, 106, 107 (T), Introductory Geography, 3 cl hr/wk, 3 cr—The student will study and discuss cultural, urban, economic, and physical geography. Settlement in relation to the physical environment is examined. Emphasis is placed upon urban and ecological problems. The student will learn geographic techniques and methodology including field research, cartography, and aerial photo interpretation.**

**Geo 207 (T), Geography of Oregon, 3 cl hr/wk, 3 cr—Examines the various historical, social, economic, and geographic factors that have made the Oregon landscape unique. Multi-media presentations will include the use of color slides, films, overhead transparencies, and music. Guest speakers will also be utilized.**

**Geo 221 (T), Field Geography (The Local Landscape), 3 cl/hr, 3 cr—The course will include utilization of field research methods, preparation of field base maps, and cartographic presentation of results of field studies in the local area.**

**History**

**Hst 101, 102, 103 (T), History of Western Civilization, 3 cl hr/wk, 3 cr—The student will be introduced to the development of the Western civilization from which western civilization has evolved. Emphasis is placed on political, economic, social, and cultural developments from ancient times to the present. Although recommended, courses need not be taken in sequence.**

**Hst 101:** The student will study the ancient civilizations of Mesopotamia, Egypt, Greece, and Rome, and those elements which influenced the development of Western Europe.

**Hst 102:** The student will study the formation of early modern European society.

**Hst 103:** The student will examine the age of revolutions and the rise of the modern national states.

**Hst 104, 105, 106 (T), History of Eastern Civilization, 3 cl hr/wk, 3 cr—The History of Eastern Civilization will offer the student a three course survey of the three major Asian regions, namely the Middle East, China, and the Far East. Major topics will include the political, economic, social, religious, and diplomatic events from their beginning to modern times. The student need not take the courses in sequence.**

**Hst 104:** The Middle East. The geographic area ranges from North Africa eastward to Iran.

**Hst 105:** Central Asia. The region of investigation is the area from Pakistan to Burma.

**Hst 106:** Far East. The area of primary examination includes China, Japan, Korea, and Indochina (primarily Vietnam).
Historical causes and historians' methods will be examined. Students will be encouraged to study historical problems and apply them to contemporary situations.

Hst 201, 202, 203 (T), History of the United States, 3 cl hr/wk, 3 cr — The course is designed to bring to the student a basic knowledge of the history of our nation and to provide some understanding of historical knowledge. Emphasis is on causes and effects and on significant trends and movements with attention to the main stream of ideas and events. The student will have the opportunity to learn how our society came to be as it is now; to gain some insight into the reactions of people to such crises as war, depression, and prosperity; to develop the ability to evaluate society and himself/herself from a historical perspective.

Hst 204 (T), History of Black Man in United States, 3 cl hr/wk, 3 cr — The student will survey the role of black man's role in American history from African, colonial backgrounds to present. Emphasis is on social, cultural developments of Reconstruction and their relation to 20th century problems.

Philosophy

None of the philosophy courses need to be taken in sequence.

Phil 201 (T), Problems of Philosophy, 3 cl hr/wk, 3 cr — The student will be introduced to some major philosophic problems e.g., what man can know and how he comes to know it, relationships between individual and society, the nature of mind, whether man's actions are free or determined — with the aim of increasing his/her understanding of these problems, exploring the affect of these problems on his/her life, and improving his/her ability to reason concerning these problems.

Phil 202 (T), Elementary Ethics, 3 cl hr/wk, 3 cr — The student will examine and evaluate problems in ethical theory through a study of major ethical systems such as those of Plato, Epicurus, Kant, and Nietzsche, in order to help the student understand the nature of ethical systems, help him/her realize the relation of ethical problems of his/her life, improve his/her ability to think systematically about these problems.

Phil 203 (T), Elementary Logic, 3 cl hr/wk, 3 cr — Emphasis is on the practical use of logical methods with questions of theory considered primarily as they affect the use of these methods. The student will examine different functions of discourse to discover common errors in reasoning (fallacies) as they occur in the context of everyday life. The student will learn patterns of deductive reasoning with the aim of determining their validity or invalidity and employing them in problem solving.

Phil 204 (T), Esthetics, 3 cl hr/wk, 3 cr — Esthetics is the branch of philosophy concerned with analyzing the arts. The student will discuss the following questions as they apply to various art forms such as painting, music, and drama. What constitutes art? What is the function of art? What kinds of experiences result from art? How can one evaluate art? The course is designed for the student who wishes a third term of philosophy, and who is interested in the arts. No prerequisite, although Phil 201, 202, or a sequence in the arts is recommended.

Phil 205 (T), Individual Studies, 3 cl hr/wk, 3 cr — The course offers the student individualized study

1) at a more advanced level than in the other philosophy courses and
2) in areas of philosophy not considered in other courses (e.g. philosophy of religion, etc.) to meet the student's interest or the special requirements of his/her program.

Phil 221 (T), Symbolic Logic, 3 cl hr/wk, 3 cr — The course is divided into two sections. In the first section the student will learn propositional notation, truth value analysis of simple and compound statements, the elimination of superfluous truth functional connectives, and truth functional analysis of arguments. In the second section the student will learn quantificational notation, deductive techniques for determining consistency and validity, demonstrative methods of showing validity, and the construction of deductive proofs within a specific formal system. Prerequisite: Consent of instructor.

Phil 231, 232, 233 (T), Asian Philosophy, 3 cl hr/wk, 3 cr

Phil 231: Orientation to Asian Philosophy. The course is designed to be of particular interest to non-philosophy students who are encountering Asian culture or art in their daily life. The student will become familiar with a basic vocabulary of terms, names, and concepts of Asian philosophy that presuppose and interrelate with all aspects of Asian culture and life. Allowances will be made to enable the student a great degree of latitude in pursuing particular interests.

Phil 232: Systems of Asian Philosophy. The student will be introduced to the major philosophical systems of the major Asian countries and how they interrelate, both historically and philosophically. The student will be expected to concentrate on one major school of his/her own choice, investigate philosophical problems common to all philosophy, and learn how they have been answered by that particular school.

Phil 233: Modern Asian Philosophers. The student will be introduced to the major figures of modern Asian philosophy: the men who "discovered" Asian thought, the men native to Asia who were primarily responsible for the preservation of Asian intellectual and cultural heritage, the men responsible for introducing Asian systems of thought and practices into the Western world and consciousness. Contemporary names like Maharishi Mahesh Yogi, Sri Aurobindo, and Guru Maharaji will be discussed and investigated, as well as more academic and historically important individuals.

Political Science

Political Science courses need not be taken in sequence.

Ps 201, 202, 203 (T), American Governments, 3 cl hr/wk, 3 cr — The student will study the background, structure, functions, processes, and interrelationships of American government at national, state, local levels.

Ps 201, 202: American national government, stressing constitutional development, distribution and source of power, political and economic institutional structure, processes of American politics.

Ps 203: State-local governments, emphasizing federal-state relations, state politics, state-local government relationships, processes of state-local governmental functions. At each stage, Oregon state-local politics used to illustrate general political processes.

Ps 205 (T), International Relations, 3 cl hr/wk, 3 cr — The student will study the nature of relations among states with specific reference to contemporary international issues; motivating factors such as nationalism, imperialism, economic rivalries, quest for security; questions of national sovereignty, international cooperation in contemporary situations. Fundamental theme of ecology and population will be stressed.

Ps 206 (T), Comparative European Governments, 3 cl hr/wk, 3 cr — The student will compare major European states and political systems including cultural, social foundations, processes of governmental policymaking: Great Britain, France, Germany, USSR. Student participation essential. Prerequisites: Ps 201, 202. Recommended: Hst 101, 102, 103, Hst 201, 202, 203.

Ps 1.600, American Institutions, 3 cl hr/wk, 3 cr — The student will increase his/her knowledge of American political institutions as they affect the citizen. Contemporary problems will be discussed in relationship to the political institutions that are covered in the class.

Psychology

Ps 111 (T), Personality and Development, 3 cl hr/wk, 3 cr — This course is designed as a growth class so as to give the student a better understanding of the origins and directions of his personality in adjusting to the demands of society. Compared to General Psychology this course places more stress on relating psychology to the personal life of the individual student. The instructor may emphasize one of several approaches toward this aim: interpersonal interaction, self-modification of behavior, explorations into the causes of personality differences, Transactional Analysis, etc.

Ps 1.546 and Ps 111, Psy 1.546 must be taken first.

Ps 114, 115 (T), Career Development, 3 cl hr/wk, 3 cr — A course giving students the opportunity to explore their work values, abilities, interests, and feelings as they re-
late to career options. Brief exercises in communication, self-understanding, decision making, information gathering, and analyzing career occupation groups and levels will help the student to relate to work as a feeling choice making individual. Social issues as they relate to careers will be explored.

Psy 201, 202, 203 (T), General Psychology, 3 cl hr/wk, 3 cr—The student will study basic principles and theories of behavior, brain processes, intelligence, development, death and dying, parapsychology, drives and motives, emotions, reactions to stress, perception, learning, personality, attitudes, social processes, and frontiers in psychology. Courses must be taken in sequence.

Psy 208 (T), Applied Psychology, 3 cl hr/wk, 3 cr—The course consists of a brief, intensive review of the techniques and principles acquired in General Psychology 201, 202, and 203. Emphasis is on individual demonstration of understanding and knowledge through application of these skills outside the classroom. Prerequisite: General Psychology 201, 202, 203 with instructor’s permission.

Psy 231, 232 (T), Human Sexuality, 3 cl hr/wk, 3 cr—Students will study and discuss the psychological, cultural, and physiological aspects of human sexuality. Emphasis will be placed upon sexual attitudes and behavior, sexual response patterns (typical and atypical), and sexual fallacies. The two terms must be taken in sequence.

Psy 231: Major topics include:
1. Male and female physiology and function.
2. Sexual functioning and motivational correlates of human sexuality:
   a.) Similarities and differences in male and female sexual response patterns.
   b.) Psychology and biology of sexual arousal.
   c.) Improving communication, sexual and otherwise.
   d.) Sexual intercourse
   e.) Motivational aspects of sexuality: Cross species analysis of hormonal influences, overview of major psycho-social factors.
3. Sexual dysfunction: Etiological factors and treatment:
   a.) Orgasmic dysfunction
   b.) Dyspareunia (painful intercourse)
   c.) Vaginismus
   d.) Premature ejaculation
   e.) Ejaculatory incompetence
   f.) Primary and secondary impotence
   g.) Sexual anxiety and conflict
   h.) Sex and neurosis
4. Venerable disease
5. Lifestyle birth control

Psy 232: Major topics include:
1. Psychosocial development:
   a.) Sexuality during infancy and childhood
   b.) How to raise sexually healthy children
   c.) Adolescent sexuality
   d.) Sexuality and aging
   e.) New directions in femininity/masculinity
2. Typical and somewhat less than typical sexual behavior:
   a.) Non-marital sex
   b.) Pair-bonded sex (marital or long-term relationships)
   c.) Sex during pregnancy and menstruation
   d.) Masturbation in infancy, childhood, and maturity
   e.) Oral-genital sexual interaction
   f.) Chastity and celibacy
   g.) Homosexuality and lesbianism: patterns, scope, current trends, etc.
3. Atypical sexual behavior:
   a.) Sexual aberrations (e.g. sadism, masochism, exhibitionism, voyeurism, transvestism, pedophilia, bestiality, etc.).
   b.) Group sex: Patterns, incidence, motivational aspects, etc.
   c.) Psychology of the sex offender
4. Cross-cultural patterns in sexual expression
5. Pornography and sex behavior
6. Commercialized sex
7. The killing and healing of love relationships.

Psy 240 (T), Psychology: Interpersonal Awareness and Growth Techniques, 3 cl hr/wk, 3 cr—This course is designed to provide the opportunity to learn communication skills through the use of a formal technique of listening and talking. Focus will be placed upon interpersonal growth with emphasis on resolution of stress producing situations and self exploration. Instructor’s permission required.

Psy 1,546, Psychology and Human Relations, 3 cl hr/wk, 3 cr—Specialy designed for students in career programs. The student will study and discuss principles of general psychology, heredity, environment, motives, instincts, competition, learning, habits, attitudes, interests, motivation, emotion, and personality. Concepts will be studied, discussed, analyzed, applied in light of influence on behavior and resulting human relations in our society. May emphasize relationships with business and industry.

Soc 204, 205, 206 (T), General Sociology, 3 cl hr/wk, 3 cr—The student will be introduced to the scientific study of human interaction with particular reference to groups.

Soc 204: The student will study such topics as sociology as a science, social organization interaction, culture, socialization, groups, and sociological research methods.

Soc 205: A continuation of 204. The student will study such topics as social change, societal conflict, and social group research. The student will be introduced to the scientific study of human interaction with particular reference to groups.

Soc 206: The student will study, analyze, and explore possible solutions to significant American social problems such as crime, delinquency, prejudice, poverty, alienation, health, etc. The problems selected and approaches used will depend on the class and the instructor. A comparative frame of reference may be utilized when appropriate. (It is recommended but not required, that terms be taken in sequence.)

Soc 212 (T), Introduction to Sociology, 3 cl hr/wk, 3 cr—This course, a modification of Soc 204, 205, and 206, is tailored for the student who has chosen a career in one of the trades or professions. For example, attention is given to labor-management relations, future of the work ethic, economics of the family, politics of work. Students will be encouraged to explore the above mentioned areas as they pertain to their specific trade or profession. Not open to students who have taken Soc 204, 205, 206.

Soc 215 (T), Social Issues and Movements, 3 cl hr/wk, 3 cr—The student will explore from a sociological frame of reference, social movements and issues. The ideologies and issues related to selected social movements will be discussed. Areas of examination may include Red Power, Black Power, Chicano, student, feminist, communist, and Jesus People movements, as well as other issues that may develop according to the interest of the students and instructor. Recommended prerequisite: Soc 204.

Soc 240 (T), Sociology of Work and Leisure, 3 cl hr/wk, 3 cr—Work and leisure will be examined in American society with the major focus on the "problem time." Leisure poses, the work ethic and the central place of work in our society, the lack of a leisure ethic and the question of a new emerging leisure ethic, behavioral consequences of the leisure dilemma, and leisure and the future.

Womens Studies

WS 101, 102, 103, 104 (T), Introduction to Women's Studies, 3 cl hr/wk, 3 cr—An introductory survey of women as a minority group. The student will consider the role of women in the family; their participation in the labor force; the general economic position of women; the psychology of women; the sexuality of women; the cross-cultural position of women; and the presentation of women in history, literature, and the arts. The course covers in detail both the classical and current literature on the subject of women in society. (WS 101 recommended before taking either WS 102, WS 103 or 104.)

WS 101: General Introduction
WS 102: Sociology, psychology, literature
WS 103: History, economics, anthropology
WS 104: Female sexuality

Social Service

Various social service agencies in the metropolitan area have assisted Portland Community College in developing and offering specialty classes to upgrade social service assistants. The success of these classes coupled with the expressed demand for further training has resulted in the following certificate and optional associate of science degree programs in Social Service training.

Job Description—The social service assistant works in a supportive capacity with such social service professions as child services, public welfare, mental health, family services, and corrections (both juvenile and adult). This specially trained man or woman should possess human relations skills, a background in the social sciences,
opportunities—in order to assist the professional for whom he/she works.

Opportunities—The expanding area of social services within the community has been faced with the critical problems of an increasing demand for services, spiraling costs, and longer working hours. As a result of these pressures, many agencies are looking to the community college to train assistants to help solve these problems.

Potential Earnings—$5,500 - $7,500 annually.

PCC Program—This program is primarily oriented towards the individual presently employed within the field who is interested in career development and/or agencies that would utilize the program as a staff development resource. However, the program is also available to students who wish to enter the social service field.

A student interested in Social Service training will have the choice of taking only individual courses, or of completing the transfer certificate or associate of science degree program options. The social service program offered at PCC may appeal to three major groups:

1. Staff development and personal growth. In the Portland metropolitan area there are numerous social service agencies. Many employ social service assistants. PCC's social service program will help people working in this capacity in personal and career development and will assist agencies in staff development efforts.

2. Students planning to earn a bachelor or advanced degree. Students who may be planning to earn a bachelor or an advanced degree, perhaps with emphasis in the social services, may wish to take courses on the lower division level in order to better understand the field and to clarify their own interests. All courses in the program are transferable to most four year colleges.

3. Students not employed, but hoping to find employment in a social service agency as a social service assistant. Students should be aware that funds to expand social service agencies and positions as social service assistants are generally lacking at this point in time. However, there is turnover of social service assistants with social service agencies. Students with preparation in the area may be able to find positions.

Certificate

Social Service Core

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<tr>
<th>Dept</th>
<th>Crs</th>
<th>Course Title</th>
<th>Course Title</th>
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<td>SW</td>
<td>202</td>
<td>Introduction to Social Work Practice</td>
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<tr>
<td>SW</td>
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<td>Introduction to Social Work Practice</td>
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<tr>
<td>SW</td>
<td>199</td>
<td>Social Service Field Experience and Seminar</td>
<td>7 1/2-9 1/2</td>
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<td>Psy</td>
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<td>203</td>
<td>General Psychology</td>
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Soc 204, 205, 206 General Sociology 9
Ath 103 Cultural Anthropology 3

Totals 33

General Education Transfer Courses

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<td>Basic Communications</td>
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<td>Personal Health</td>
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</table>

Totals 12

Total credits required for certificate — 45

Associate of Science Degree

90 transferable credit hours
Prerequisite: Satisfactory completion of the certificate program (45 credit hours) or approved equivalent.

General Education Transfer Courses

<table>
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<tr>
<td>SW 199</td>
<td>Social Service Field Experience and Seminar</td>
<td>7 1/2-9 1/2</td>
<td>3</td>
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</table>

Psych 201, General Psychology 9
Psych 202, General Psychology 9
Psych 203, General Psychology 9

SW 201 (T), The Field of Social Welfare, 3 cr—An introductory course in which the student will study the nature and scope of selected social problems in America, the relationship of these problems to the historical development of the social welfare system and various current social service organizations.

SW 202 (T), Introduction to Social Work Practice, 3 cr—An introductory course in which the student will study the purposes, scope, and functions of social work practice, the role of a social worker, and the practice methods of casework, group work, and supervision.

SW 203 (T), Introduction to Interviewing, 3 cr—The student will study the purposes and types of interviews, the roles of interviewer/interviewee, and the development of the helping relationship, problems of interpersonal communication, information gathering and assessment, and the evaluation of interview results. The student will also practice interview techniques.

Portland Community College offers classes in this subject area in locations throughout the community such as Altered States of Consciousness, American Government, American Institutions, Anthropology, Changing Behavior in Children, Coping with Death and Dying, Developing Personal Awareness and Potential, Dream Interpretation, Environmental Issues of the Northwest, General Psychology, History of the United States, History of Western Civilization, Living with Dying, Living with Your Teenager, Naked on Stage, New Testament: Its Historical Background, Oregon for the Curious, Philosophy, Polarity Workshop, Psychology and Human Relations, Principles of Economics, Re-Evaluation Counseling, Social Studies, Sociology, Transactional Analysis, Transcendental Meditation, Understanding and Directing Your Emotions, and Womens Studies. New education programs in the community are planned each quarter. For a complete schedule of times and locations, call 1244-6111.

Course Numbering and Coding

General studies courses are designated by a two- or three-digit number [e.g. Psy 201 (T)]; those carrying transferable credits are followed by a (T) and may be transferred to an accredited four year institution of higher education.

Career program courses are assigned decimal numbers (e.g. RmS.200).

Course prerequisites and recommended sequences are stated in the course description. Class hours and credits follow the course title in the course description.
For more information contact:
James Van Dyke
Dean
Lynn Brokaw
Behavioral Sciences
Department Chairman
Allen Epp
History
Department Chairman
Instructors:
Anthropology
Mary Douglas
Betty Pope
Bent Thygensen
Economics
Gordon Galbraith
Martin Haney
Robert Payne
Geography
Larry King
Morley Moran
History
Richard Bruno
Robert Costi
Albert Ellsworth
Charles Kraft
Ronald Leistra
Jack McCluskey
Clifford Stephens
George Vaternick
Philosophy
Stephen Carey
Stephen Rathman
Valerie Simmons
Political Science
Robert Costi
John Olson
James Timmins
Psychology
Lynn Brokaw
Ann Clarkson
Robert Crooks
Jim Howell
Gary Lesniak
Al Mayer
Judith Reynders
Barbara Strait
Kathy West
Social Service
William Rose
Sociology
John Cannucci
Donald Gibbs
Ervin Hummel
Lillanna Kopp
Robert McLaren
William Rose
Womens Studies
Ann Clarkson
Lois Janzer
Lillanna Kopp
Valerie Simmons
Courses in art, drama, and music are offered for the student who will transfer to a four year institution, who is completing his/hers general education requirement for an associate of applied science degree, or who is taking a course for personal enrichment.

See the College Transfer section of this catalog for a typical associate of arts or of science degree transfer program. To plan a major in one of these areas, contact the Visual and Performing Arts department or a PCC counselor.

If you are interested in the Commercial Art program, see Mass Media section of this catalog.

Four year institutions vary in the number of transfer credits they will accept for art courses. In planning your transfer program check with the institution to which you will be transferring for the number of credits they will accept.

Art 110, 111 (T), Recreational Use of Arts and Crafts, 4 cl hr/wk, 2 cr—The student will be introduced to arts and crafts through study of basic techniques, principles, and elements of various art practices. A series of lecture-demonstrations will be followed by studio work covering the maximum possible number of activities. Material covered will be the basis for organizing a recreational crafts program.

Art 195, 196, 197 (T), Basic Design, 4 cl hr/wk, 2 cr—Basic Design is a beginning course in art. Emphasis is placed on identifying design problems and developing strategies to solve these problems. The student will work on various projects using creative processes. Materials, techniques, vocabulary, and ideas are presented to the student as a tool with which he/she makes decisions concerning an approach to two and three dimensional design problems.

Fall: Student will solve a series of imaginative graphic design problems.

Winter: Student will work on problems dealing with colors and will be directed to see differences and similarities of colors.

Spring: Student will work with instructor to develop own design projects.

Art 201, 202, 203 (T), Survey of Visual Arts, 3 cl hr/wk, 3 cr—The primary purpose of the course is to increase understanding and enjoyment of the visual arts. Art appreciation depends on individual attitudes, emotions, and personal preferences as well as knowledge; therefore, the student will be involved in seeing, talking, and reading about various visual art forms: architecture, painting, sculpture, crafts and film. He/she will also have an opportunity to work in an exploratory way with some of the media.

Fall: The student will investigate and discuss architectural forms, space for living, and art in advertising.

Winter: The student will become acquainted with the visual elements and organization principles used by the artist in his/her work: drawing, painting, and sculpture.

Spring: The student will have an opportunity to become acquainted with a broader range of media and techniques: film, TV, ceramics, fabrics, printing, and graphics.

Art 204, 205, 206 (T), History of Western Art, 3 cl hr/wk, 3 cr—Using the basic history of art as a reflection of man's interaction with his environment, the student will explore, view, evaluate, and react to many art forms.

Fall: Ancient art, Greek, Roman art.

Winter: Early Christian, Medieval, Renaissance, Baroque art.

Spring: 19th, 20th century art.

Art 217 (T), Lettering (Calligraphy), 3 cl hr/wk, 1 cr—Lettering Seminar (Calligraphy), 6 cl hr/wk, 2 cr—Lettering: The student will study and demonstrate lettering principles, techniques, and functions; he/she will discuss the traditions and the historical developments of the letters.

Fall: The italic alphabet, lower and upper case. If class development warrants, black letter and/or uncial is introduced. By the end of the term the student will have an understanding of the problems involved in the lettering process, i.e. use of tools, materials, and characteristics of the alphabets.

Winter: The Roman alphabet, lower and upper case. Secondary alphabets studied are Egyptian and flat pen angle lower case Roman.

Spring: Ten basic alphabets are taught, one new alphabet each week. Students work through the historic development of the letters from the first century A.D. (Classical Roman) through the 20th century (modified italic).

Lettering Seminar: For the advanced lettering student, the Lettering Seminar provides experience with as many applications of calligraphic letter forms as possible. Different methods of making the letters are examined as well as a wide variety of possible design uses. Some techniques covered in a year's time are: batik, marbling, and other methods of paper decoration; gold leaf; brush lettering; silk screen; stencils; screen printing; preparation for photographic reproduction; color usage. Finished projects for the year may include a hand-written, hand-sewn booklet employing decorated papers as cover and end-paper; a clay tile decorated with letters; an engraved piece of copper or glass; a batik wall hanging; a fabric 'collage; a gold leaf decorated initial. One half of the class time is usually spent developing an excellent italic handwriting for everyday use. Prerequisite: two terms of Lettering Art 217, or instructor's permission. PCC accepts a total of nine transfer credits for Art 291.

Art 292 (T), Water Color, 4 cl hr/wk, 2 cr—The student will study and demonstrate technique and use of water color with special attention to its characteristics as a painting medium. Primary emphasis is on landscape material. PCC accepts a total of six transfer credits for Art 292.

Art 293 (T), Sculpture, 6 cl hr/wk, 2 cr—An introduction to creating sculptural forms from models and imagination using clay, plaster, wood, and metal. The student will study sculptural processes such as modeling, molding, casting, carving, and welding, etc. PCC accepts a total of nine credits for Art 293.

Art 255 (T), Ceramics, 6 cl hr/wk, 2 cr—The student will study and demonstrate the processes and principles of ceramics with emphasis on pottery. Instruction is offered in hand construction, throwing, glazing, and firing. Students arrange their specific programs with the instructor. PCC accepts a total of nine transfer credits for Art 255.

Art 257 (T), Jewelry and Metalsmithing, 1 cl, 5 lab hr/wk, 2 cr—An introduction to the design, processes, and materials used in jewelry making and metalsmithing. The student will design projects using basic principles and techniques of design and will form ferrous and non-ferrous metals by sawing, forging, soldering, casting, and shaping. PCC accepts a total of six transfer credits for Art 257.
TA 111, 112, 113 (T), Fundamentals of Acting, 6 cl hr/wk, 3 cr—The student will explore the actor’s resources to develop physical and vocal expressiveness. Experiences will give the student an insight into the nature and process of dramatic characterization—building a desired emotional response and establishing “believability” in a role and its action. Prerequisite: TA 111 for TA 112, 113.

TA 211, 212, 213 (T), Play Production, 9 hr/hr/wk, 3 cr—The student will study and practice theater production techniques including set designing and construction, blocking, costuming, lighting, and other staging problems. As a result of the experience of mounting a production, the student should be able to participate in the various activities involved in staging a play.

TA 250 (T), Projects in Theater, 6 hr/hr/wk, 1/2 cr—The student will participate in various aspects of theater production providing a channel for creativity and self-expression. Prerequisite: Permission of instructor.

Theatre Activities Program—Because of the extensive time demands for the student interested in personal development and/or participation in theatrical productions, the drama program offers a minimum of twenty-four (24) hours per week of work-study-participated in theatre activities, with time for some elective class options.

The program is not limited to the full time drama student; the individual classes are open to all and are geared and timed to serve anyone interested in “personal development” acting classes or the experiences derived from the play production class activities.

Music

Mus 51, Basic Voice, 3 lab hr/wk, 1 cr—This course is designed to teach proper vocal technique in a group situation and gives beginning voice students an opportunity to learn basic techniques. It further develops all kinds and enhances the total choral program. It should be a prerequisite to Performance Studies in voice for any student who has not had previous private instruction in vocal music.

Mus 110 (T), Fundamentals of Music, 3 cl hr/wk, 3 cr—The student who has had little or no musical training will be introduced to basic music theory, music notation, and construction of scales. He/she will gain a basic knowledge of the piano keyboard and will apply this knowledge in the choral accompaniment of easy songs. The basic skills learned in Music 110 will allow the student to continue into Music Theory I.

Mus 111, 112, 113 (T), Music Theory I, 4 cl hr/wk, 4 cr—The student will study the basic structure of music, tonality, melody, harmony, form, and modalities. He/she will develop skills in music dictation, sight singing, and be able to analyze choral, classical and fold compositions. Successful completion will prepare students for Music Theory II.

Mus 190 (T), Performance Studies, Private instruction, 1 cr—The student will receive individual instruction in piano, organ, voice, and instrumental music. Prerequisite: audition demonstrating an acceptable level of competency.

Mus 194, 294, (T), Chamber Ensemble, 2 cl hr/wk, 1 cr—Chamber ensembles are small performing vocal and instrumental groups. Emphasis is placed on precision, sensitivity, and musicianship. Percussion, strings, woodwind, brass.

Mus 195 (T), Stage Band, 3 cl hr/wk, 1 cr—The student will study and perform a wide range of music culminating in public performance. No audition required.

Mus 196 (T), Orchestra, 3 cl hr/wk, 1 cr—The student will study and perform standard symphonic literature. Students will be selected from qualified players in the college and in the greater Portland area.

Mus 197 (T), Chorus, 3 cl hr/wk, 1 cr—Introduction to the various styles and periods of vocal music. The student will learn to understand and use vocal music notation. He/she will study and prepare a wide range of representative choral literature for public performance.

Mus 201, 202, 203 (T), Introduction to Music and its Literature, 3 cl hr/wk, 3 cr—The student will learn to better understand and enjoy music through a study of its elements, forms, and styles. He/she will be introduced to music from Greek to modern jazz and 20th century and be able to recognize various styles and periods.

Mus 211, 212, 213 (T), Music Theory II, 3 cl hr/wk, 3 cr—The student will continue the study of harmony. Introduction to harmonic counterpoint and continued keyboard harmony, sight-singing, and dictation will be examined. Three and four voice contrapuntal writing technique will be studied. The student will understand and analyze various forms of music.

Mus 214, 215, 216 (T), Keyboard Harmony, 1 cl hr/wk, 1 cr—This course is designed to offer development of keyboard skills to students with varying backgrounds and/or goals, music majors with some theory and pianoskills who want to improve on the application of their theory vocabulary to the piano, music majors with little or no keyboard skills, non-music majors who wish to develop keyboard skills. This course is a basic piano course which will include the application of the principles of music theory to the keyboard, the playing of scales, cadences, melody harmonization, simple accompaniment patterns, transposition. The objective of the course is to help each student progress from his current degree of facility at the keyboard toward a functioning keyboard student with the described skills and vocabulary.

Mus 290 (T), Performance Studies (Private instruction), 1 cr—Second year—continuation of Mus 190, which is prerequisite.

Portland Community College offers classes in this subject area in locations throughout the community such as Amateur Drama-
Job Description—An Air Force officer may fly as a pilot or navigator in some of the world’s finest aircraft or may enter the scientific and engineering fields. Others work in research and development or one of the vast support organizations.

Opportunities—All graduates of an accredited four year college who complete the Professional Officer Course will be commissioned a second lieutenant in the U.S. Air Force Reserve and may enter active duty.

Potential Earnings—Entry on active duty: rated officer $899.30 per month; non-rated officer $1,490.39 per month; general $1,325.39 per month.

PCC Program—The Air Force ROTC students will receive their training on campus at the University of Portland. Only the first two years, General Military Course (GMC), may be completed while attending PCC. The final two years must be completed at a college which offers a baccalaureate degree and is affiliated with AFROTC.

The AFROTC Program
Air Force ROTC offers to the men and women both a two year and a four year campus program, both of which lead to an Air Force commission. Students who qualify may elect to pursue either of these programs.

Four Year Program
The four year program requires student participation during four academic years. During the first two years, while enrolled in the General Military Course (GMC), cadets may apply and compete for entry into the Professional Officer Course (POC). Those selected will normally enter the POC at the beginning of their junior year on campus. On completion of the POC, a four week Field Training course, and receipt of a college degree they will be commissioned in the Air Force Reserve as second lieutenants.

Two Year Program
A student must have two years of study remaining at the time he/she enters the two year program. He/she must be physically and mentally qualified and recommended by an AFROTC interview board for attendance at a six week Field Training course prior to entering the POC. After successful completion of the POC and receipt of a college degree, the student will be commissioned in the Air Force Reserve as a second lieutenant.

Requirements for entry into the POC
A student accepted into the Professional Officer Course must:

1. Be a citizen of the United States.
2. Successfully pass the Air Force Officer Qualifying Test.
3. Successfully pass a physical examination.
4. Be interviewed and selected by the professor of Aerospace Studies.

5. Agree to serve on active duty for a period of not less than four years (six years if applying for pilot or navigator training).
6. Join the Air Force Reserve for a period of six years.

College Scholarship Program
AFROTC offers scholarships which pay students' tuition, laboratory fees, textbook allowances, and $100 per month. Students must be enrolled in AFROTC to compete for two or three year scholarships.

The Flight Instruction Program
This program provides flight training and ground school for seniors who are members of the POC and who aspire to be pilots. Its purpose is to determine their interest in and suitability for flying training in the Air Force. Flight instruction is provided by the Air Force Flight School. (See Two Year Program.) Includes military customs and ceremonies, orientation and familiarization with the mission of an Air Force installation. While at Flight School, the cadet is paid at the rate of $344 per month.

Uniforms
All students enrolled in the AFROTC program are furnished complete uniforms of the type presently worn by personnel of the United States Air Force. The faculty of Aerospace Studies furnishes all textbooks for classroom use. Each student is required to make a $35 deposit at the time of registration. Of this $35 deposit, $25 will be used to defray expenses of various cadet activities, and $10 will be returned to student upon return of his/her uniform, less any amount required to cover loss of textbooks or uniform items.

Allowances
Students enrolled in the POC are paid a $100 monthly retainer fee. During the Field Training Course, the student is furnished transportation or given a travel allowance to and from the baseconducting the course, food, lodging, uniforms, and medical attention. Rates of pay while at Field Training are listed under Field Training Courses.

Courses in Aerospace Studies
General Military Courses
101-2, U.S. Military Forces in Contemporary World, 2 sems/2 hrs—A study of the doctrine, mission, and organization of the United States Air Force; U.S. strategic, offensive and defensive forces; their mission, function, and employment of nuclear weapons; civil defense; aerospace defense; missile defense; U.S. general purpose and aerospace support forces; the mission, resources, and operation of tactical air forces, with special attention to limited war; review of Army, Navy, and Marine general purpose forces.

201-2, The Development of Air Power, 2 sems/2 hrs—A survey course concerned with the beginnings of manned flight; development of aerospace power in the United States; development of the employment of air power in WWII, Korean, and Vietnam; and the peaceful employment of U.S. air power in civic actions, scientific missions, and support of space exploration.

301-2, National Security Forces in Contemporary American Society, 2 sems/2 hrs—The role of the professional military leader in a democratic society, societal attitudes towards the armed forces, the requisites for maintaining adequate national defense structure, and the impact of technological and international developments on strategic preparedness and the overall policy making process.

Field Training Courses
Six Week Field Training (summer), non-credit—Required for students who have not completed the GMC prior to entry into the POC. It serves as a substitute for the GMC. (See Two Year Program.) Includes military customs and ceremonies, orientation and familiarization with the mission of an Air Force installation. While at Field Training, the cadet is paid at the rate of $344 per month.

Four Week Field Training (summer), non-credit—Required for POC students who have been enrolled in the GMC (conducted between their sophomore and junior years). Provides orientation and familiarization with the mission of an Air Force base. While at Field Training, the cadet is paid at the rate of $317 per month.

Aerospace Studies Administration and Faculty
Lt. Col. Edwin C. Lindberg, USAF
Commandant
Instructors: Michael L. Burton, Major, USAF
James L. Pyle, Capt., USAF
Apprenticeship

Portland Community College provides related classes of instruction in accordance with the Oregon Apprenticeship Law. These classes cover instruction in related technical areas of the trades and are intended to complement the skills learned on the job. Information on how to become an apprentice may be obtained from the Oregon State Apprenticeship Council, 1400 S.W. Fifth Avenue, Portland, Oregon 97201, or the Apprenticeship Information Center, 1437 S.W. Fourth Avenue, Portland, Oregon 97201.

An associate degree program for journeymen and apprentices who wish to expand their knowledge and skills is also available. At PCC more than 1400 men and women attend classes in the evenings or on Saturdays as part of their on-the-job training program. PCC provides approximately 5% of an apprentice's training through supportive in-class work while 95% of his or her training is received on the job.

Each apprenticeable trade has a Joint Apprenticeship and Training committee which outlines the procedures an individual must follow to become a journeyman (usually two to five years of supervised, on-the-job experience in various aspects of the trade and class work at PCC.) The training committees outline the type of supportive courses needed to prepare qualified journeymen and work with PCC to set up related training. PCC employs instructors and provides classroom facilities.

The following is a list of apprentice trades conducting related training classes with the PCC Apprentice Center:

- Automotive
- Baker
- Boilermaker
- Bridge and Iron
- Dental Technician
- Drywall Finisher
- Graphics
- Heavy Tractor and Equipment
- Manufacturing Plant Electrician
- Inside Electrician
- Northwest Line Construction Electrician
- Mill and Cabinet
- Molder and Coremaker
- Motor Winder
- Optical
- Outside Electric
- Painter
- Plumber
- Sheetmetal
- Sign Hanger
- Sign and Pictorial Artist
- Stationary Engineer
- Linoleum and Carpet
- Mechanist
- Steamfitter

Trade Extension (Journeyman Training)
The programs for journeyman provide training in both skills and knowledge needed to deal with changes in materials and techniques of the trades. The classes are open to journeymen, foremen, and supervisors.

Special training programs may be set up by contacting the chairmen of the department of Apprenticeship and Trade Extension, Portland Community College.

Associate of Applied Science in Industrial Technology for Journeymen and Apprentices

A new associate degree program designed for journeymen and apprentices working in crafts and trades certified by the Oregon Bureau of Labor is available now at Portland Community College. The program was developed to provide educational opportunities for the journeyman or apprentice who wishes to broaden the learning experiences provided by apprenticeship training.

To receive the Associate of Applied Science in Industrial Technology degree, you must complete 18 credit hours of general education in the following areas:

- Arts and Humanities courses
- Social Science courses
- Communication courses
- Health and Physical Education courses
- Science and Mathematics courses

and an additional 27 credit hours of elected related training classes in your occupational field which allows you to tailor your degree program to your specific needs.

To complete the required 90 hours for the associate degree,

Journeymen certified by the Oregon Bureau of Labor receive an automatic 45 hours of credit for their successful training experiences.

Apprentices will receive 45 hours of credit upon the completion of their apprenticeship and certification.

If you have a question concerning the acceptability of a course toward meeting the general education or elected related training classes, contact your apprentice coordinator or Portland Community College's Apprenticeship department.

Offices for the Portland Community College Apprentice Center are located at Multnomah Center, 1736 S.W. Alder Street, Portland, Oregon 97205, phone 243-1017.

For more information contact:
Robert Palmer
Dean
William R. True
Department Chairman
Robert J. Hilger
Coordinator
Education Programs in the Community

Portland Community College was organized to provide a total education program for the community. When PCC began operation in 1961, many adult education programs existed throughout the college district. During the summer of 1969, representatives of each school district met with the college to plan and initiate a cooperative community education program.

In September 1969, 12 community education centers provided service to 3,000 persons. In the fall of 1970, 6,132 individuals participated in classes at 49 locations; during fall term 1974, PCC had nearly 17,000 persons enrolled in education programs offered in locations throughout the district.

Each term the cooperation and participation of each district has grown, and the working partnership with each school district has been strengthened.

Education is whatever you want to make it.

Whatever your need, PCC is available to help you find or plan the program to answer that need. Areas of service include:

- Special interest courses—courses on any topic of interest;
- Special events—special one time programs presented during the school year in locations throughout the district;
- Adult Basic Education and Tutoring—courses in basic learning skills as preparation for the high school equivalency examination (many basic education subjects are offered in a one-to-one situation);
- Career programs—courses to prepare persons for employment or to upgrade the skills of an employee;
- Lower division college transfer courses—a student may begin work toward a baccalaureate degree at any of the community centers by taking courses which carry college transfer credit.

To make educational opportunities available to as many citizens as possible, PCC provides easily accessible centers throughout the PCC district, extension classes, conferences, institutes, workshops and short courses, lecture series, radio and television programs, and community service events.

PCC gratefully acknowledges the cooperation of the many local school districts which help the college bring educational programs to all persons in the community.

How can you start a class?

Courses and activities are developed when 12 or more people indicate their interest or when a request is received which has the potential of attracting 12 or more persons. These programs are not confined to traditional centers. Facilities being used now for community education programs include: schools, three mobile classrooms serving migrant groups, small communities, low income areas, etc., homes, churches, stores, manufacturing plants, and garages.

What is the cost?

Fees vary according to type and length of class, and the amount of state reimbursement and lab fees, if any. Hobby and recreation classes are not financed by the state, and tuition must support the cost of these classes. Tuition for these non-credit classes is generally 65¢ per contact hour. All classes for college credit are based on $10.00 per credit hour (1974-75). Senior citizens (65 years of age or over) may enroll at no cost for non-credit providing they have applied and received a senior citizen identification card. Senior citizens must pay lab fee if applicable or regular credit tuition if credit is desired.

Local Centers

| Community Educational Services Division Office and Information |
| phone: 244-6111 |
| Beaverton School District No. 48J Community Education Center phone: 297-4531 |
| PCC Cascade Community Education Center phone: 283-2541 |
| Forest Grove School District No. 15 Community Education Center phone: 357-6111 |
| Hillsboro School District No. 7 Hillsboro Union High District No. 3J PCC Hillsboro Center Community Education Center phone: 648-9328 |
| Lake Oswego School District No. 7 Community Education Center phone: 639-6110 |
| Newberg School District No. 23J Community Education Center phone: 539-9774 |
| North Plains School District No. 70 Community Education Center phone: 357-6111 |
| Portland School District No. 1J Community Education Center phone: 244-6111 |
| St. Helens School District No. 502 PCC St. Helens Center Community Education Center phone: 397-1311 or if no answer: 397-3085 |
| Scappoose School District No. 1J Community Education Center phone: 397-1311 |

Sherwood School District No. 88J Community Education Center phone: 625-6171 or 639-6110 1-4 p.m. (Monday and Wednesday) PCC Southeast Center Community Education Center phone: 777-3397 Tigard School District No. 23J Community Education Center phone: 639-6110 Vermillion School District No. 47J Community Education Center phone: 429-8891
What may we do for you?

The Portland Community College philosophy encourages any individual or group to participate in the planning and promotion of education activities in their area. Anyone may identify a need or an idea, communicate with their local center, and participate in the development and promotion of their idea. The kinds of information that the college needs to begin developing a new course, service, or activity are included in the questionnaire below. If you are interested in seeing the college develop your idea, complete these questions and mail the coupon to your local center or to Portland Community College, Attention: Community Education Division, 12000 S.W. 49th Avenue, Portland, Oregon 97219.

NAME ____________________________
ADDRESS ____________________________
CITY ____________________________
STATE __________ ZIPCODE ____________
TELEPHONE ____________________________
LOCAL CENTER ____________________________
☐ Yes, I would like to receive mailings from the college.
☐ Schedule of classes
☐ Monthly calendar of events
☐ Other: ____________________________
☐ Please send me information and applications for a PCC Senior Citizens Identification Card.

Describe the class, service, or activity that you would like to see provided in your community.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe the group which you think would be interested.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What is the best way to communicate with this group?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

For more information contact:
B. F. Emery
Dean
Community Education Coordinators
Linda Cammack
Linda Clark
Thomas Hamilton
Alvin Koeki
Jean McDonnell
Steve Mueller
Jim Norris
Shelia Pilger
Richard Young
Community Services
Dorothy Leonhardt
Adult Basic Education and Separate Contracts
Jim O'Brien
Coordinator
R.S.V.P.
Gerry Nutt
Director
Zone 1
Tigard, Jackson, Wilson, Riverdale, Lake Oswego school districts.
Dr. Robert A. Bissett
A native of Portland, Dr. Bissett attended the University of Oregon and UO Dental School. He is a member of the Rotary, Chamber of Commerce, Masonic Lodge, and Shriners, and on the staff of the Shriner's Hospital for Crippled Children.

Zone 2
Jefferson, Roosevelt, Sauvie Island, Scappoose school districts.
Dr. Howard Cherry
Dr. Cherry was born in Waterville, Washington, and attended schools in Idaho and Oregon before graduating from Oregon State and the University of Oregon Medical School. He is a former member of the Portland School Board Association.

Zone 3
Madison, Marshall high school districts.
Lewis C. Nickerson
Nickerson was born in Los Angeles and graduated from the University of Oregon with a degree in political science. He is president of Nickerson Fleet Management Corporation and a Navy veteran.

Zone 4
Grant, Washington high school districts.
Manley J. Bakkensen
Bakkensen is general manager for Northwest Grocery Company, Portland. A native of Minneapolis, Minnesota, he attended Oregon schools and is active in many civic and club organizations including Rotary, Rose Festival Association, and Salvation Army.

Zone 5
Cleveland, Franklin high school districts
Earl Blumenauer
Blumenauer, assistant to the president of Portland State University and a representative to Oregon's Legislative Assembly, is a graduate of Centennial High School, and he holds a B.A. from Lewis and Clark College.

Zone 6
Beaverton, Sunset, Lincoln high school districts.
Robert E. Thompson
A Beaverton attorney, Thompson is a graduate of Willamette University Law School. His bachelor's degree is from Oregon State University. Thompson is a past president of the Beaverton area Chamber of Commerce, Washington County Public Affairs Forum, and Washington County Bar Association.

Zone 7
St. Helens, Vernonia, Banks, Forest Grove, Gaston, Hillsboro, Sherwood, Newberg school districts.
Hugh McGilvra
A Forest Grove resident, McGilvra is publisher of three newspapers in Washington County. He is a former representative to the Oregon Legislature and a graduate of Willamette University.

Amo De Bernardis
President
Portland Community College
Advisory Committees

Community involvement has always been an important part of the educational process at Portland Community College. An Advisory Council guided PCC from 1961 to 1968, when it was still part of the Portland Public Schools. Today nearly 800 persons representing a cross-section of the Portland area form 100 advisory committees which assist the college in developing and maintaining quality programs.

The college believes that cooperative effort of industry, business, agencies, and the professions with education is necessary to provide relevant career preparation programs for students. Advisory committees are appointed to further the commitment of educating graduates with current job-entry skills required for the work world.

The success of PCC's career programs is due in large measure to the knowledge and energy given by advisory committee members who make programs practical and meaningful.

The purpose of advisory committees is to advise Portland Community College and to provide appropriate kinds of support which are mutually agreed upon by PCC and the specific advisory committee. The committee usually advises on program content, program facilities, employment potential for graduates of the program, and in many instances will assist in placement of program graduates. The committee and PCC work together in order to provide a relevant, effective, and efficient instructional program which will produce graduates with the job-entry skills required by business and industry.

Accounting and Business Management
William Carpenter
James Dillworth
Charles Hawkins
Elidon Milis

Architectural Drafting
Clare D. Austin
Alan Beard
A. P. DiBenedetto
Bill Hummel
Jim McCartan
John Murtaugh
Richard W. Norman
Alex B. Pierce
Bruce Samuelson

Auto Body Repair
James E. Eber
Walt Froberg
Art Heckard
Bob MacPherson
Joseph Sanforth
Gene Szekely
Steve White

Automotive
Mal Everist
John Manougian
Ken Mutch
Robert Thomas
Frank J. Warrens

Automotive*
Cam Bondy

John A. Hermen
Jerome J. Junk
Marvin Kelso
Gail Lawson
David M. Moncrieffe
John Pardee, Jr.
Anthony A. Parker
Donald E. Short
Thomas R. Stassens
Donald W. Wheeler

Aviation Maintenance Technology
Robert Carter
James R. Esch
Richard Henderson
Vern Hickman
Jack Lansing
Wes Lennatta
John Spooner
Al Timmerman

Bakers*
Robert C. Bruce
Roger C. Burley
Alex J. Edenhofer
Noel E. Johnson
Paul B. Poyfair
Merle E. Scott
Per Zeeberg

Banking and Finance (A.I.B.)
Robert Ferguson
Ken Knudsen
Helen McGuire
Joy Spencer

Banking and Finance (Pre-Service)
Robert Ferguson
Kenneth D. Hahn
Gary Pomeroi
Joy J. Spencer
Lucia Warren
Karin Whalen

Barbers*
Earl Beier
Robert L. Hansen
Luther P. Jobe
L. E. Leischner
Craig R. Low
M. C. Nielsen

Basic Education
Phyllis Benner
Obduio Fernandez
William Halley
Edwin S. Johnson
Elva Pokornie
Mrs. Blair Preuss
Coy Ristick
Tom Wilison

Boilermakers*
Reinhold E. Beckman
Dwight L. Brittain
Lester Cartwright
Taivy DeCillo
Howard Harmena
James McCulloch
Harvey J. Meyers
Don Morse
John Schrantz
Verne Shoepke

Bridge and Ironworkers*
Ronald L. Anderson
Myland Burk
Glenn A. Henry
Gordon Jensen
Clyde A. Lomax
Neil D. McGee
John Woolley
LeRoy Wortley

Civil Engineering Technology
Layne Caswell
Ray Cruden
Roy L. Fox
Spencer B. Gross
Dick Johnson
LaGrande Marchant
Jerry S. Maris
Bert Mason, Jr.
Clair E. Pense
Lt. Col. Saling
Ted Schaefer
Ramon M. Schwiegler
Glenn Taylor

Commercial Art
George Corneil
Tom Myers
Dick Schmidt
John Semple
Barney Smith

Construction Technology
Ron Anderson
Clarence Crank
Robert Cuples
A. P. DiBenedetto
Jerry Jones
Neil Kelly
Con Meeker
Ken Meuser
Clare Spence
Wayne Thomas

Consumer-Home Economics
Fern Alexander
Larry Boyle
Carolyn Bonater
Joe Garcia
Anne Godwin
Pauline Goodwin
Larry Jessen
Alberta Johnson
Marian Kienzel
Anne Mishler
Bernie Muller
Wanda Phipps
Jan Rathe
Harry Strain

Cosmetology
Darrell K. Cason
Vera Gastmeyer
Robert Hansen
Virginia Honeywell
Peggy Lind
Maymie Sawyer
Burt Sweet

Criminal Justice
Sheriff Warren B. Barnes
Waynette Chan
Harold K. Clark
Chief Herb Dahlquist
Dr. Thomas J. Fox
Al Green
Harl Haas
Robert Lucas
Charles McKinney
Chief Don Newell
Captain John E. Nolan
Captain Norman Reiter
Dr. Edward Scott
Captain William Taylor
Captain Charles G. Thomas
Jim Weber
Chief John Williams

Data Processing
George Allworth
Gene P. Carey
Rod P. Colton
Jerry Crane
E. J. Klein, Jr.
William Mumney
Pete Rowe
Ed Shreck

Dental Assistant
Dr. Jack Clinton
Lucy Hartman
Dr. Barry Haaglin
Jacque Hoekstra
Jennifer Schafer
Dr. Warren Schafer

Dental Hygiene
Jean Bennett
Dr. James Bennett
Dr. William Gallagher
Dr. James Tallman

Dental Technicians*
Ellsworth D. Ambuhl
Arnold Hoaglin
Jacquie Hoekstra
Jennie Schafer
Dr. Warren Schafer
Dental Hygiene
Jean Bennett
Dr. James Bennett
Dr. William Gallagher
Dr. James Tallman

Dental Technology
Harris L. Hoevet
Robert W. Roberts
Earl R. Slabaugh

Diesel Service Mechanics
Lloyd Anspecht
Floyd Chapman
Bill Foss
Robert Gaelli
John Hermansen
Bill Kimmell
Don Kline
Jim McHorse
Vern Moultrie
Tony Parker
Bill Richardson
Mike Ward
Wally Yost

Dietetic Technology
Arllys Andresen
Ed. Boertman
Jean Glanz
Bill Hadley
Robert Riser
Virginia Tompkins

Drywall Finishers*
Ed Charles
Bud Clark
Lynn Cox
K. N. Crawford
Clifford A. Gustwig
Steve Kerrnutt
Victor Lehto
Robert J. Lewis
Ray McClain
Nyal Mullins

Early Childhood Education
Ruth Berger
Helen Gordon
Patricia Hickox
Frances Usley
Marilyn Peters
Ray Rowe
Charles Royer

Edie Ryma
Edward P. Smith
Jean Spaulding
Electricians and Appliance Repair*
Maurice Arthurs
Harold Bauder
Ira James Clausen
Gerald Finch
Elmer Griggs
Curtis Johnson
John R. LaMont
Leo Lyon
Fred B. Owens

Electronics
Ralph Mercer
Gary Squires

Fire Service
Rudy Acuna
Asst. Chief Mel Brink
Chief James Brown
Neil Davidson
Chief Justin George
Chief Harold Jacobson
Chief Robert John
Chief Dan Smith
Chief Russell Washburn
Vern Wayne
Richard White

Food Service
Lloyd Berry
John Bond
Harold Bradley
Lorenzo Davison
Walter Holman
Al Hooning
Earl Kelly
George Knickrehm
Udo Lindkoff
Howard Stanfill
Dieter Wohlschlegel

Food Service Supervisors
Arllys Andresen
Verna Black
Genevieve Cary
Pauline Goodwin
Francis Lohmann
Robert Riser

Graphic Arts
Vic Albro
Everett Corie
Richard Elliott
Mel Van Lom
Carl Peterson
Robert Russau
Arnold Wheeler

Graphic Arts*
Harry Emerson
Dana E. Jewell
Adam H. Jones
James Katsules
James Lovatt
William McDonald
Robert Russau
Gary Wilcox
Leonard Wolf

Health Records
Myrna Brown
Amy Denton
Pete Fleissner
Lillian Harms
Joan Hayward
Betty Leeson
Frank McBarron
Jacque Paye

Marsha Shives
Lynne Wahler

Heavy Duty Tractor and Equipment*
Paul Alexander
Hugh Gift
Floyd J. Hart
Darrell Higbee
Virgil Izatt
Stan Jackson
Robert Johnson
Dale Kapple
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### Calendar of Instruction 1975-77

#### Summer 1975
- **Fall term preregistration closes**: June 13 (for spring term students)
- **Add/Drop begins**: June 9
- **Open Registration**: June 23
- **All night classes begin**: June 23
- **Classes begin**: June 24
- **Last day to register or add classes**: June 27
- **Independence Day Holiday**: July 4
- **(classes in recess)**
- **Refund cut-off date**: July 18
- **Deadline for Graduation Petition**: Aug. 1
- **Fall term preregistration closes** (for summer term students): Aug. 22
- **Fall term preregistration closes** (for new students): Aug. 22
- **Last day to drop and receive a “W”**: Aug. 30
- **Summer term ends**: Sept. 6
- **Final grades due in Registrar’s office**: Sept. 8

#### Fall 1975
- **Registration**: Sept. 8-10 (returning students who have preregistered)
- **Add/Drop begins**: Sept. 8
- **180 day employees begin work**: Sept. 15
- **Registration**: Sept. 11-23 (new students who have preregistered)
- **Open Registration**: Sept. 24-Oct. 3
- **Classes begin**: Sept. 29
- **Winter term preregistration begins**: Oct. 13
- **(Last day to register or add classes)**: Oct. 3
- **Refund cut-off date**: Oct. 24
- **Veterans Day Holiday**: Nov. 11
- **(classes in recess)**
- **Thanksgiving Holiday**: Nov. 27-28
- **Winter term preregistration ends**: Nov. 21 (returning and new students)
- **Deadline for Graduation Petition**: Dec. 1
- **Last day to drop and receive a “W”**: Dec. 12
- **Fall term ends**: Dec. 20
- **Final grades due in Registrar’s office**: Dec. 22
- **Classes in recess**: Dec. 22-Jan. 2

#### Winter 1976
- **Registration**: Dec. 1-12 (returning students who have preregistered)
- **Add/Drop begins**: Dec. 1
- **Registration**: Dec. 15-19 (new students who have preregistered)
- **Open registration**: Jan. 5
- **All night classes begin**: Jan. 5
- **Classes begin**: Jan. 6
- **Spring term preregistration begins**: Jan. 19
- **(Last day to register or add classes)**: Jan. 9
- **Refund cut-off date**: Jan. 30
- **Spring term preregistration ends**: Feb. 20 (returning and new students)
- **Deadline for Graduation Petition**: Mar. 1
- **Last day to drop and receive a “W”**: Mar. 12
- **Winter term ends**: Mar. 20
- **Final grades due in Registrar’s office**: Mar. 22-26

#### Spring 1976
- **Registration**: Mar. 1-12 (returning students who have preregistered)
- **Add/Drop begins**: Mar. 1
- **Registration**: Mar. 15-19 (new students who have preregistered)
- **Open registration**: Mar. 29
- **All night classes begin**: Mar. 29
- **Classes begin**: Mar. 30
- **Summer and fall term preregistration begins**: Apr. 12
- **(Last day to register or add classes)**: Apr. 2
- **Refund cut-off date**: Apr. 23
- **Deadline for Graduation Petition**: May 1
- **Summer term preregistration ends**: May 21
- **(returning and new students)**
- **Summer term classes end**: May 31
- **(classes in recess)**
- **Last day to drop and receive a “W”**: June 4
- **Spring term ends**: June 12
- **Graduation ceremonies**: June 11
- **Final grades due in Registrar’s office**: June 14

#### Summer 1976
- **Fall term preregistration closes**: June 11 (for spring term students)
- **Add/Drop begins**: June 7
- **Open Registration**: June 21
- **All night classes begin**: June 21
- **Classes begin**: June 22
- **(Last day to register or add classes)**: June 25
- **Independence Day Holiday**: July 5
- **(classes in recess)**
- **Refund cut-off date**: July 16
- **Deadline for Graduation Petition**: Aug. 1
- **Fall term preregistration closes** (for summer term students): Aug. 20
- **Fall term preregistration closes** (for new students): Aug. 20
- **Last day to drop and receive a “W”**: Aug. 28
- **Summer term ends**: Sept. 4
- **Final grades due in Registrar’s office**: Sept. 6

#### Fall 1976
- **Registration**: Sept. 6-8 (returning students who have preregistered)
- **Add/Drop begins**: Sept. 6
- **180 day employees begin work**: Sept. 14
- **Registration**: Sept. 9-Sept. 21 (new students who have preregistered)
- **Open registration**: Sept. 22-Oct. 1
- **Classes begin**: Sept. 27
- **Winter term preregistration begins**: Oct. 1
- **(Last day to register or add classes)**: Oct. 1
- **Refund cut-off date**: Oct. 22
- **Veterans Day Holiday**: Nov. 11
- **(classes in recess)**
- **Thanksgiving Holiday**: Nov. 25-26
- **Winter term preregistration ends**: Nov. 19 (returning and new students)
- **Deadline for Graduation Petition**: Dec. 1
- **Last day to drop and receive a “W”**: Dec. 10
- **Fall term ends**: Dec. 18
- **Final grades due in Registrar’s office**: Dec. 20
- **Classes in recess**: Dec. 20-31

#### Winter 1977
- **Registration**: Nov. 29-Dec. 10 (returning students who have preregistered)
- **Add/Drop begins**: Nov. 29
- **Registration**: Dec. 13-17 (new students who have preregistered)
- **Open registration**: Jan. 3
- **All night classes begin**: Jan. 3
- **Classes begin**: Jan. 4
- **Spring term preregistration begins**: Jan. 7
- **(Last day to register or add classes)**: Jan. 7
- **Refund cut-off date**: Jan. 28
- **Spring term preregistration ends**: Feb. 18 (returning and new students)
- **Deadline for Graduation Petition**: Mar. 1
- **Last day to drop and receive a “W”**: Mar. 11
- **Winter term ends**: Mar. 19
- **Final grades due in Registrar’s office**: Mar. 21
- **Classes in recess**: Mar. 21-25

#### Spring 1977
- **Registration**: Feb. 28-Mar. 11 (returning students who have preregistered)
- **Add/Drop begins**: Feb. 28
- **Registration**: Mar. 14-18 (new students who have preregistered)
- **Open registration**: Mar. 28
- **All night classes begin**: Mar. 28
- **Classes begin**: Mar. 29
- **Summer and fall term preregistration begins**: Apr. 11
- **(Last day to register or add classes)**: Apr. 1
- **Refund cut-off date**: Apr. 22
- **Deadline for Graduation Petition**: May 1
- **Summer term preregistration ends**: May 20 (returning and new students)
- **Memorial Day Holiday**: May 30
- **Last day to drop and receive a “W”**: June 3
- **Spring term ends**: June 11
- **Graduation ceremonies**: June 11
- **Final grades due in Registrar’s office**: June 13
- **(classes in recess)**
- **Students may register after this date with department chairman approval.**