THE SCHOOL OF PHARMACY at Oregon State University is a member of the American Association of Colleges of Pharmacy and is fully accredited by the American Council on Pharmaceutical Education. Its objective is to contribute to the improvement of public health and welfare through dissemination, expansion, and application of knowledge. In so doing the School provides an instructional program assuring academic and technical proficiency in the basic sciences and their pharmaceutical application.

A petition from the pharmacists of Oregon led to the establishment of a Department of Pharmacy at Oregon State College in 1898. The department grew steadily and in 1917 became the School of Pharmacy. The Pharmacy Building, which was designed and constructed specifically for pharmaceutical education, was built in 1925 and extensively remodeled and expanded in 1966.

Holders of the Bachelor of Science in Pharmacy degree can qualify for a wide variety of professional positions. Most graduates engage in the community practice of pharmacy; approximately half are owners or part-owners of pharmacies. Opportunities also exist for pharmacists in hospital and clinic pharmacies; as medical representatives for pharmaceutical manufacturers; as production, control, and research pharmacists in the manufacture of medicinal and pharmaceutical products; as personnel in wholesale drug distribution; as food and drug control chemists or inspectors for local, state, and federal health agencies; and in pharmaceutical journalism.

Graduates of this school are privileged to become licensed either by examination or reciprocity in all states. California, Florida, and Hawaii permit licensure by examination only.

Adjunct Faculty

The Departments of Pharmaceutical Science and Pharmacy Administration utilize practicing pharmacists and physicians as lecturers in the clinical teaching program, in the hospital pharmacy program, in pharmacy management, and in graduate education. Current adjunct faculty are:

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<tr>
<th>Name</th>
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A young man or young woman beginning a career in pharmacy needs to have a combination of natural attributes, education, training, and experience.

A pharmacist has a position of considerable responsibility in the health professions. Carelessness on his part can endanger lives. Therefore, a student going into pharmacy should be of high moral character and needs to be neat, orderly, accurate, and careful with details.

Formal pharmacy education is divided into two parts—two years of prepharmacy, and three years of professional pharmacy. After successful completion of this 5-year course of study, the graduate receives the B.S. degree and becomes eligible to complete the internship requirements described below and to take the examination given by the state Board of Pharmacy. After completion of these requirements a license is granted.

**The Prepharmacy Program**

The courses required in the freshman and sophomore years—see curriculum on next page—may be taken at any accredited college or university, including Oregon State University. If a high school graduate fulfills the requirements for admission to OSU (see page 11) he may be admitted to the School of Pharmacy as a freshman. He does not need to have taken any additional specific high school courses, but mathematics, chemistry, physics, and biology, as well as English and speech communication are recommended.

Students from community colleges and from other colleges and universities or from other schools at OSU may transfer into the prepharmacy program at the beginning of any term during their freshman and sophomore years. If they plan to apply for the professional pharmacy program, it is recommended that they transfer into the School of Pharmacy as early as possible, but they can take as much as two complete years elsewhere if their personal situation makes that more convenient.

**The Professional Pharmacy Program**

The three-year professional pharmacy program—see curriculum on next page—provides a broad scientific base with room for a wide variety of elective courses. A student may take additional courses in business and economics, in various fields of pharmacy, or advanced work in mathematics and chemistry, especially if he or she is interested in retail, industrial, institutional (hospital, Public Health Service), or research pharmacy.

Through judicious selection of approved courses in his last two years, a student may concentrate in such areas as general pharmacy practice, clinical pharmacy, administrative pharmacy, or industrial pharmacy or may prepare for graduate study.

Enrollment in the three-year professional program is limited. A student who has completed the prepharmacy requirements must apply for admission to the professional pharmacy program. Application forms and information about admission policies are available from the School of Pharmacy.

Once admitted to the junior year in pharmacy, students should register for a regular sequence of work as outlined on the next page. The sequence of both professional and nonprofessional required courses in the curriculum must be maintained. A student may register for only those courses for which he has the stated prerequisite courses.

Each student is assigned a faculty adviser according to his class standing. He reviews his future plans and career objectives with his adviser and with his assistance works out the program of courses to be taken. The student must have his proposed schedule approved by his adviser each term before registration.

In order to move from the junior year (first year of professional pharmacy program) to the Senior I year, a student must have completed all the required junior courses and have a grade-point average of 2.00 or higher, both cumulative and in pharmacy courses. The requirement for entering the Senior II (fifth) year is similar.

Each year upperclassmen make several field trips. Annually the fifth-year students tour several pharmaceutical plants in the Midwest with transportation their only expense. As guests of the pharmaceutical houses, they are provided with lodging and meals. Visits to hospitals, wholesale houses, manufacturers in Oregon, and visiting lecturers help to acquaint them with the scope of pharmacy.

**University Honors Program**

The Honors Program in this School is co-ordinated with the programs in other schools and administered by the Director of the University Honors Program (see page 30). Information concerning eligibility and application forms may be obtained from the Director.

**Licensure**

Under the provisions of public health laws, it is required that the pharmacist be licensed before he is permitted to compound and dispense drugs and medicines on the prescriptions of doctors, dentists, and veterinarians. In order to become licensed in Oregon a person must be not less than 21 years of age, of good moral character, and a graduate of an accredited school or college of pharmacy that is recognized by the Board of Pharmacy. He must also complete internship requirements and successfully pass an examination given by the Board of Pharmacy.

One calendar year of internship in the various areas of pharmacy under the supervision of a registered pharmacist is a basic requirement. A student who interns in a pharmacy concurrently with school attendance can not have the time count. No internship may count until after the student has finished the sophomore year in pharmacy at OSU. At least one-fourth of the internship must be obtained after graduation; all of it may be gained after graduation if desired.
Curriculum in Pharmacy

Baccalaureate 
Degree Programs

The Bachelor of Arts (B.A.) and the Bachelor of Science (B.S.) degrees are offered in the five-year undergraduate program in Pharmacy.

A candidate for a degree must satisfy the general requirements (see page 14), and he must have a total of at least 240 term hours of university-level courses including the approved pre-pharmacy and professional pharmacy curricula. He must have a grade-point average of 2.00 (C) or higher in all professional pharmacy course work to graduate.

Study Graduate

A need exists for persons with education beyond the B.S. degree to fill positions in industrial research and development, college teaching, government service, hospital pharmacy, and pharmaceutical distribution. The School of Pharmacy offers advanced degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in pharmaceutical chemistry, pharmaceutical science, pharmacology, and pharmacognosy. The M.S. is offered in pharmacy administration and hospital pharmacy. The Master of Pharmacy (M. Pharm.) degree is offered with a major either in pharmacy administration or in hospital pharmacy.

In all cases, advanced degree programs are developed with faculty advice to meet the interests and objectives of the individual candidate. See Graduate School for advanced degrees.

Candidates for admission to graduate study must hold a bachelor's degree in pharmacy from OSU or its equivalent, or in hospital pharmacy. Graduate study must hold a bachelor’s degree in pharmacy from OSU or its equivalent, and he must have attained a creditable scholastic average in undergraduate work and have determined a definite objective to be attained through advanced study. All advanced degrees are granted through the Graduate School.

PREPHARMACY CURRICULUM 
May be taken at any accredited college or university

First Year

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<th>Course</th>
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Second Year

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PROFESSIONAL CURRICULUM

First Professional Year

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Second Professional Year

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Third Professional Year

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1 Elective recommended: speech, history (U.S. or Western), or computer science.
2 Students may substitute Ch 334, 335, 336, and 337.
3 Transfer students must take PAD 201.
4 Required for two terms.
5 All electives must be approved by the adviser.

PROFESSIONAL ASSOCIATIONS

Rho Chi. Eligibility for membership in Beta chapter of Rho Chi, national pharmaceutical honor society, is based on high scholastic achievement.

Lambda Kappa Sigma. Membership in Rho chapter of this international pharmacy sorority is limited to qualified women in pharmacy who meet the scholastic requirements.

Kappa Psi. Membership in Beta Zeta chapter of this national professional pharmacy fraternity is limited to qualified men who meet the scholastic requirements.

In order to broaden the preparation for professional activities and civic responsibilities, students are encouraged to join professional organizations. At Oregon State you may choose among the following:

Oregon-Amercian Pharmaceutical Association. Open to all students in pharmacy; includes the student branches of both the American Pharmaceutical Association and the Oregon State Pharmaceutical Association.

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PHARMACEUTICAL CHEMISTRY

The Department of Pharmaceutical Chemistry offers undergraduate and graduate courses concerning the chemistry of inorganic and organic therapeutic and pharmaceutical agents used in current medical practice, and courses in qualitative and quantitative drug analysis.

PCh 313. Inorganic Pharmaceutical Chemistry.
4 hours fall.
3 0 1 0
Inorganic chemicals and their preparations used in pharmacy and medicine with emphasis on those in the U.S.P. and N.F. Prerequisite: Ch 206 or equivalent; Psc 317 prerequisite or concurrent.

PCh 323. Organic Pharmaceutical Chemistry.
4 hours winter.
3 0 1 0
Organic chemicals and their preparations used in pharmacy and medicine; correlation between chemical and physical properties and physiological action. Prerequisite: PCh 313; Ch 228,229.

PCh 324,325. Organic Pharmaceutical Chemistry.
3 hours fall, 4 hours winter.
3 0 4 0
Organic chemicals and their preparations used in pharmacy and medicine; correlation between chemical and physical properties and physiological action. Prerequisite: for PCh 324, fourth-year standing and concurrent enrollment in Pch 410; for PCh 325, PCh 324 and concurrent enrollment in Phc 411.

PCh 331. Pharmaceutical Analytical Chemistry.
5 hours spring.
3 0 2 0
Principles of quantitative chemical and physical methods used in the analysis of pharmaceuticals. Emphasis on methods in the U.S.P. and N.F. Prerequisite: PCh 333.

Courses numbered 400-499 and designated (g) or (G) may be taken for graduate credit.

PCh 401. Research.
PCh 403. Thesis.
PCh 405. Reading and Conference.
Terms and hours to be arranged.

PCh 407. Seminar.
Terms and hours to be arranged.
Conducted jointly with 407 in PSc, PAd, PPh, and PPhc.

PCh 440,441,442. Selected Topics.
(g) 3 hours each term.
3 0 2 0
Recent developments in pharmaceutical chemistry and their application to pharmaceutical practice. Topics include: hormones, vitamins, chemotherapeutic agents, CNS depressants and stimulants, cardiovascular drugs, etc. Not all topics covered each year. May be taken in any order. Prerequisite: PCh 325.

PCh 443. Toxicology.
3 hours winter.
2 0 1 0
Detection of common inorganic and organic poisons; emphasis on alkaloids and synthetics. Prerequisite: fifth-year standing.

PCh 450,451,452. Biopharmaceutical Chemistry.
3 hours each term.
3 0 1 0
Biocellular applications of pharmaceutical chemistry. Prerequisite: fourth-year standing and concurrent enrollment in Pch 324 and 325.

PCh 461,462,463. Special Analytical Methods. (g)
3 hours each term.
1 0 2 0
Advanced quantitative methods, both chemical and physical, as applied to drugs and their dosage forms. Prerequisite: fourth-year standing.

Graduate Courses
See also courses marked (g) or (G) above.

PCh 501. Research.
PCh 503. Thesis.
PCh 505. Reading and Conference.
Terms and hours to be arranged.
PCh 507. Seminar.
Terms and hours to be arranged.

PCh 527,528,529. Pharmaceutical Chemistry.
3 hours each term.
3 0 1 0
Natural and synthetic sources of medicinal agents; theoretical bases of biological responses to applied agents; correlation of molecular structure with biological activity. Prerequisite: PCh 325; Phc 412.

PCh 530,531,532. Pharmaceutical Chemistry Laboratory.
2 hours each term.
2 0
To be taken in conjunction with PCh 527, 528,530.

PCh 540,541,542. Phytopharmaceutical Chemistry.
3 hours each term.
3 0
Nomenclature, chemistry, stability, and relationships of structures to pharmacological and toxicological activity of steroids, alkaloids, glycosides, terpenes, and other related compounds of medicinal and pharmaceutical interest. Prerequisite: PCh 325; Phc 412.

PCh 543,544,545. Phytopharmaceutical Chemistry Laboratory.
2 hours each term.
2 0
To be taken in conjunction with PCh 540, 541,542.

PHARMACEUTICAL SCIENCE

The Department of Pharmaceutical Science offers undergraduate and graduate courses in the various areas related to professional practice and dosage formulation of therapeutic agents.

PSc 310. History of Pharmacy.
2 hours any term.
2 0
A study of early pharmacy in the Pacific Northwest. Prerequisite: PSc 317.

5 hours fall or spring.
4 0 1 0
Introduction to the practice of pharmacy. Prerequisite: Ch 206.

PSc 318. Survey of Pharmacy Practice.
1 hour any term.
1 0
Observation, identification, and comparison of policies and procedures in various types of pharmacy practice. Consent of instructor required. Prerequisite: PSc 317.

3 hours each term.
2 0 1 0
Physical pharmacy and biopharmaceutics. Prerequisite: fourth year standing.

Courses numbered 400-490 and designated (g) or (G) may be taken for graduate credit.
PSc 401. Research.
PSc 405. Reading and Conference.
Terms and hours to be arranged.
PSc 407. Seminar.
Terms and hours to be arranged.
Conducted jointly with 407 in PAd, PCh, PPh, and PPhc.

PSc 420. Health Center Pharmacy Experience.
1 hour any term.
1 0
Prerequisite: fourth-year standing.
PSc 454,455,456. Pharmacy Practice.
3 hours each term.
2 0 1 0
Prescription department procedures and clinical pharmacy. Prerequisite: fifth year standing.
PSc 460. Hospital Pharmacy.
3 hours any term.
2 0 1 0
The specialized area of hospital pharmacy. Limit 20. Prerequisite: fourth-year standing, consent of instructor.
(G) 3 hours winter and spring.
1 0 2 0
Development and production of drug products. Prerequisite: fifth-year standing.
PSc 470. Biopharmaceutics.
3 hours.
3 0
PSc 490. Drug Information Services.
(G) 3 hours any term.
1 0 2 0
Prerequisite: fifth-year standing.

Graduate Courses
See also courses marked (g) or (G) above.

PSc 501. Research.
PSc 503. Thesis.
PSc 505. Reading and Conference.
Terms and hours to be arranged.
PSc 507. Seminar.
Terms and hours to be arranged.
PSc 510. Physical Pharmacy.
3 hours.
2 0 1 0
Physico-chemical properties of pharmaceutical systems.
PSc 512,513. Manufacturing Pharmacy.
3 hours winter and spring.
1 0 2 0
Unit operations in manufacture of pharmaceuticals.
PSc 520,521,522. Hospital Pharmacy.
3 hours each term.
3 0
The organization and operation of a hospital pharmacy.

School of Pharmacy 175
PSC 554,555,556. Product Development. 3 hours each term. 1 2 3
Current and novel dosage forms; product stability; therapeutic design.

PHARMACOGNOSY

The Department of Pharmacognosy offers undergraduate and graduate courses that deal with drugs of biological origin.

Pcg 330,331. Pharmacognosy. 4 hours fall and winter. 3 3 1 2
Official and important nonofficial drugs of biological origin; microscopic, microscopic, and micro-chemical identification. Prerequisite: CH 228,229, BI 213.

Pcg 332. Pharmacognosy. 4 hours spring. 4 1
Continuation of Pcg 331. Prerequisite: Pcg 331; MB 304.

Courses numbered 400-499 and designated (g) or (G) may be taken for graduate credit.


Pcg 407. Seminar. Terms and hours to be arranged. Conducted jointly with 407 in Psc, PAd, PCh, and PCh.

Pcg 433. Antibiotics and Hormones. 3 hours fall. 3 1
Development, dosage forms, use, and stability. Prerequisite: Fifth-year standing.

Pcg 454,455. Pharmacognosy. (G) 3 hours winter and spring. 1 2 3
Extraction, isolation, and identification of active components from drug plants. Prerequisite: Pcg 332.

Pcg 471,472. Pharmacognostical Techniques. (G) 3 hours fall and winter. 1 2 3

Pcg 476. Plant and Animal Poisons. 3 hours spring. 3 1
Toxicology of plant and animal constituents potentially hazardous to man. Prerequisite: Junior standing. Consent of instructor required.

Pcg 495. Biological Products. 3 hours winter. 3 1
Vaccines, sera, antisera, and related products. Prerequisite: Fifth-year standing.

Graduate Courses

See also courses marked (g) or (G) above.


Pcg 507. Seminar. Terms and hours to be arranged.

Pcg 540,541,542. Natural Products. 3 hours each term. 1 2 3
Laboratory work concerned with isolation, purification, and estimation of active components of medicinal plants. Pcg 540: glycosides; Pcg 541: alkaloids; Pcg 542: volatile oils, resins, related compounds. Prerequisite: Pcg 332.

Pcg 545. Phytochemistry of Drug Plants. 3 hours. 3 1
The distribution of certain secondary plant constituents. Prerequisite: Pcg 455 or equivalent.

Pcg 550,551,552. Biogenesis of Medicinal Plant Constituents. 3 hours each term. 3 1

PHARMACOLOGY AND TOXICOLOGY

The Department of Pharmacology and Toxicology offers undergraduate and graduate courses that deal with the action of drugs and other chemicals on living things. The physiological responses, mode of action, toxic properties, therapeutic uses, standardization, and other phenomena are considered.

Phc 315. Safety in Use of Drugs. 2 hours any term. 2 1
Origin and development of drugs, their purpose, uses and shortcomings, dangers, and misuse. Prerequisite: Sophomore standing, nonpharmacy major.

Phc 380. Drug Education. 3 hours any term. 3 1
Pharmacologic principles, drug use, abuse, dependence, and laws. Prerequisite: One year of a basic science; nonpharmacy major.

Courses numbered 400-499 and designated (g) or (G) may be taken for graduate credit.


Phc 407. Seminar. Conducted jointly with 407 in Psc, PAd, PCh, and PCh.

Phc 410,411,412. Pharmacology. (g) 4 hours each term. 4 1
Pharmacodynamics, toxicity, and therapeutic uses of drugs. Prerequisite: For Phc 410, Fourth-year standing for pharmacy students.

Phc 414,415,416. Pharmacology Laboratory. (g) 1 hour each term. 1 1
To be taken in conjunction with Phc 410,411,412.

Phc 454. Commercial Poisons. (G) 3 hours fall. 3 1
Toxicology of common household, medicinal, industrial, and economic poisons. Prerequisite: Fifth-year standing.

Phc 455,456,457. Pharmaceutical Therapeutics. (G) 3 hours each term. 3 1
Discussion of disease states: pathogenesis, symptoms, pharmacological basis of therapy. Prerequisite: Fifth-year standing.

Graduate Courses

See also courses marked (g) or (G) above.


Phc 507. Seminar. Terms and hours to be arranged.

Phc 515. Environmental Toxicology. 2 hours. 2 1
Nature and public health aspects of environmental contaminants. Prerequisite: Two years of chemistry, two years of biology.

Phc 520,521,522. Advanced Pharmacology. 2 hours each term. 2 1
Lectures and conferences on advanced concepts and applications of pharmacologic actions of drugs. Prerequisite: Phc 412; BB 352, or equivalent.

Phc 523,524,525. Advanced Pharmacology Laboratory. 1 hour each term. 1 1
To be taken in conjunction with Phc 520,521,522.

Phc 530,531. Advanced Toxicology. 3 hours winter and spring. 2 1 2
Lectures, conferences, and laboratories on advanced concepts and mechanisms of toxicity of drugs and other chemicals. Prerequisite: Phc 412; BB 352, or equivalent.

Phc 535. Pharmacometrics. 3 hours fall. 2 1 2
Evaluation of drug activity by various pharmacologic techniques, screening methods, official and other bioassays. Prerequisite: St 452; Phc 412.

Phc 590T. Drug Use and Abuse. 2 hours summer to be arranged.

PHARMACY ADMINISTRATION

The Department of Pharmacy Administration offers undergraduate and graduate courses concerned with the economic, social, business, and legal aspects pertaining to and associated with the practice of pharmacy.

PAd 201. Pharmacy Orientation. 2 hours fall or spring. 2 1
Open to nonpharmacy students.

PAd 345. Medical Care. 3 hours winter. 3 1
Organization and financing of public and personal health services. Prerequisite: Psy 302.

PAd 347. The Environment of Pharmaceutical Services. 3 hours spring. 3 1 1
Environment and appraisal of drug distribution and use. Prerequisite: PAd 345.

Courses numbered 400-499 and designated (g) or (G) may be taken for graduate credit.

PAd 401. Research. PAd 403. Thesis. PAd 405. Reading and Conference. Terms and hours to be arranged.

PAd 407. Seminar. Terms and hours to be arranged. Conducted jointly with 407 in Psc, PCh, Pcg, and Pnc.
FINANCIAL AIDS

Corbett Fund. Selected Oregon students, preferably from Harney County, who are in their last three years of pharmacy may borrow from a fund established in memory of Orville Corbett.


McKesson and Robbins Award. $50 awarded annually by the Portland Branch of the company to the senior scoring highest in a comprehensive examination in pharmacy. The recipient's name is engraved on a plaque in the School of Pharmacy.

Merck Awards. Two sets of reference books awarded annually to seniors having highest scholastic averages in pharmacy and in pharmaceutical chemistry.

Portland Retail Druggists Association Plaque. Awarded annually to the graduating senior who attains the highest scholastic rank in his class.

Rexall Trophy. Awarded annually to the senior who presents the most outstanding record of service to the School of Pharmacy while maintaining a high scholastic average.

Rho Chi Award. An advanced reference work in pharmacy or related field awarded each year to a junior having the highest scholastic rating in professional studies.

Class Service Awards. Awarded annually to the student who has best served the school and his class by his activities while at OSU.