

# Pharmacy Practice

---

**N. G. Popovich**, Head of the Graduate Program

**Professors:** S. R. Abel, *Pharm.D.*; B. C. Carlstedt, *Ph.D.*; R. K. Chalmers, *Ph.D.*, *William S. and Edith C. Bucke Professor of Pharmacy Practice*; H. L. Mason, *Ph.D.*; B. A. Mueller, *Pharm.D.*; M. D. Murray, *Pharm.D.*; N. G. Popovich, *Ph.D.*

**Associate Professors:** R. W. Bennett, *M.S.*; C. H. Brown, *M.S.*; G. D. Newton, *Ph.D.*; S. A. Scott, *Pharm.D.*; J. Thomas III, *Ph.D.*

**Assistant Professors:** J. A. Everett, *Pharm.D.*; M. B. Kays, *Pharm.D.*; M. M. Murawski, *Ph.D.*; D. J. Murry, *Pharm. D.*; T. A. Salazar, *Pharm.D.*; M. K. Scott, *Ph.D.*; K. M. Sowinski, *Pharm.D.*

**Research Opportunities.** The Department of Pharmacy Practice provides opportunities for advanced study and research in three major areas: clinical pharmacy, pharmacy administration, and pharmaceutical education. Consistent with the mission of the department, graduate programs focus on research which contributes directly to the scientific and professional body of knowledge resulting in advancements in practice, education, and optimal use of drug therapy. *Clinical pharmacy* research is designed to optimize patientspecific pharmacotherapy. Specific endeavors include *in vivo* pharmacokinetics and pharmacodynamics, *in vitro* laboratory research, pharmacoepidemiology, and outcomes assessment. Research studies are intended to develop clinical scientists who can apply the basic sciences to the clinical aspects of drug therapy. Faculty expertise encompasses a wide variety of patient populations and disease entities. *Pharmacy administration* focuses on managing the financial, physical, and human resources involved in the practice of pharmacy and the healthcare industry. The intent of this research is

to evaluate outcomes associated with pharmacy practice and drug utilization, resulting in optimal patient care. Research programs are designed to develop expertise in problem resolution based upon the principles, concepts, and applications of economic, management, marketing, measurement, social, and behavioral sciences. *Pharmaceutical education* involves the development, implementation, and evaluation of innovative instructional methodologies to enhance pharmacists' ability to provide pharmaceutical care. Research programs develop a thorough understanding of learning theory and application to instructional needs within pharmacy curricula and continuing professional education. The graduate program in the Department of Pharmacy Practice prepares clinical scientists, administrators, and educators capable of excelling in practice, academic, and industrial settings. A professional degree in pharmacy from an accredited school of pharmacy normally is required for admission to programs offered by the department.

## Graduate Courses in Pharmacy Practice

---

**PHPR 590 Special Topics in Pharmacy Practice** Sem. 1 and 2. Class 2–3, cr. 1–3. Admission by consent of instructor. (May be repeated for credit.)

Special topics in selected areas of pharmacy practice. Staff.

**PHPR 598 Introduction to Research** Sem. 1 and 2. SS. Lab. 3–9, cr. 1–3. Admission by consent of instructor.

Qualified students will undertake a project in an area of pharmacy practice, clinical pharmacy, or pharmacy administration under a member of the graduate faculty. Staff.

**PHPR 664 Research Techniques and Proposal Development** Sem. 1. Class 2, cr. 2. (Offered in alternate years.)

A consideration of current trends in pharmacy practice, clinical pharmacy, and pharmacy administration relating to healthcare services and systems. Professor Murawski.

**PHPR 698 Research** M.S. Thesis.

**PHPR 699 Research** Ph.D. Thesis.

## Graduate Courses in Clinical Pharmacy

---

**CLPH 567 Principles of Drug Information Services** Class 2, cr. 2. Prerequisite: STAT 503 or equivalent.

An introduction to the evaluation of primary literature and to basic experimental design. Designed to prepare the student for more intelligent and effective use of the clinical literature by teaching the student how to properly critique clinical investigations of drug safety and efficacy. Professor Heck.

communication, drug information activities, administrative skills, and research in the context of providing pharmaceutical care and services. J. Krause and staff.

**CLPH 572 Pathophysiology and Therapeutics II** Sem. 1. Class 1–5, cr. 1–5. Prerequisite: CLPH 471 and DP/C status. (May be repeated for credit.)

Pathophysiologic and therapeutic instruction on selected disease states to prepare the student to design, recommend, implement, monitor, and alter osteffective, patient-specific pharmacotherapeutic plans. Professors Carlstedt, Sowinski, and staff.

**CLPH 586 Doctor of Pharmacy Clerkship — Pediatric Medicine** Sem. 1 and 2. SS. Cr. 4. Offered as pass/not pass only. Prerequisite: completion of all didactic requirements for the Pharm.D. degree and consent of instructor. (May be repeated for credit.)

Four-week clinical experience rotation dealing with pediatric patients in a selected medical or pharmacy patient care facility. Students gain experience in therapeutic decision making, disease management, communication, drug information activities, and the provision of pharmaceutical care. J. Krause and staff.

**CLPH 573 Pathophysiology and Therapeutics III** Sem. 2. Class 1–8, cr. 1–8. Prerequisite: CLPH 572 and DP/C status. (May be repeated for credit.)

A continuation of CLPH 572. Pathophysiologic and therapeutic instruction on selected disease states to prepare the student to design, recommend, implement, monitor, and alter cost-effective, patient-specific pharmacotherapeutic plans. Professors Everett, Salazar, and staff.

**CLPH 587 Doctor of Pharmacy Clerkship — Critical Care Medicine** Sem. 1 and 2. SS. Cr. 4. Offered as pass/notpass only. Prerequisite: completion of all didactic requirements for the Pharm.D. degree and consent of instructor. (May be repeated for credit.)

Four-week clinical experience rotation dealing with critically ill patients in a selected medical or pharmacy patient care facility. Students gain experience in therapeutic decision making, disease management, communication, drug information activities, and the provision of pharmaceutical care. J. Krause and staff.

**CLPH 585 Inpatient Medicine Clerkship** Sem. 1 and 2. SS. Cr. 4. Offered as pass/not-pass only. Prerequisite: completion of all didactic Pharm.D. requirements plus DP-D status. (May be repeated for credit.)

Four-week clinical experience rotation in a selected inpatient medical, pharmacy, or healthcare related patient care facility. Students gain experience in therapeutic decision making, disease management,

**CLPH 588 Doctor of Pharmacy Clerkship — Ambulatory Medicine** Sem. 1 and 2. SS. Cr. 4. Offered as pass/not-pass only. Prerequisite: completion of all didactic requirements for the Pharm.D. degree and consent of instructor. (May be repeated for credit.)

Four-week clinical experience rotation dealing with patients in a selected ambulatory care medical or pharmacy facility. Students gain experience in therapeutic decision making, disease management, communication, drug information activities, and the provision of pharmaceutical care. J. Krause and staff.

**CLPH 589 Doctor of Pharmacy Clerkship — Elective Rotation** Sem. 1 and 2. SS. Cr. 4. Offered as pass/not pass only. Prerequisite: completion of all didactic requirements for the Pharm.D. degree and consent of instructor. (May be repeated for credit.)

Four-week clinical experience rotation in a selected medical, pharmacy, or healthcare related facility. Students gain experience in therapeutic decision making, disease management, communication, drug information activities, administrative skills, research, and the provision of pharmaceutical care and services. Professor Scott and staff.

**CLPH 590 Patient Care I: Applied Therapeutics** Sem. 1 and 2. SS. Cr. 4–16. Prerequisite: CLPH 552, 567, IPPH 575, and consent of instructor.

## Graduate Courses in Pharmacy Administration

---

**PHAD 544 Healthcare Systems** Sem. 1. Class 3, cr. 3. Prerequisite: graduate standing in the Department of Pharmacy Practice or PHAD 444 or consent of instructor.

Explores the complex environment in which healthcare goods and services are delivered to American consumers, including the political, economic, and social forces that shape healthcare policy. Topics include health statistics, healthcare manpower, hospitals, long-term care, healthcare financing, costs and cost containment strategies, health planning, healthcare reform, and international healthcare systems.

**PHAD 556 Healthcare Economics and Public Policy** Sem. 2. Class 3, cr. 3. Prerequisite: graduate standing in the Department of Pharmacy Practice or consent of instructor.

Principles and theories of healthcare economics applied in analysis of the U.S. healthcare system. Perspectives are presented on the differential roles of economic analysis and policy analysis. Topics include medical care as an input to health, pharmaceutical service market, adequacy of health manpower supply, health associations and demand for legislation. Healthcare reform, the pharmaceutical industry, and social values that guide policy are explored. Professor Thomas.

**PHAD 562 Pharmacy Management in Organized Healthcare Systems** Sem. 2. Class 2, cr. 2. Prerequisite: PHAD 464 and 472.

Management, marketing, and economic principles as related to pharmacy practice in organized healthcare systems. Implications are discussed for career management for developing, maintaining, and evaluating

Four- to 16-week clinical rotations in selected medical, pharmacy specialty, or clinical research areas of a patient care facility. Students gain experience in therapeutic decision making, disease management, patient monitoring and drug information activities. Staff.

**CLPH 690 Special Problems** Sem. 1 and 2. SS. Lab. 6, cr. 2. Prerequisite: CLPH 462 or equivalent.

Individual research topics pertaining to the practice of clinical pharmacy in institutions and the community. Staff.

**CLPH 691 Special Problems** Sem. 1 and 2. SS. Lab. 6, cr. 2.

Continuation of PHAR 690.

**CLPH 696 Seminar in Pharmacy** Sem. 1 and 2. Class 1, cr. 0–1. (May be repeated for credit.)

Designed to provide the student with experience in the oral and written presentation of special topics of interest to clinical pharmacists and researchers. Discussion of current problems relating to the clinical practice of pharmacy. Professor Scott and staff.

progressive pharmaceutical care services and managing a pharmacy department in an organized healthcare system. Professor Abel.

**PHAD 563 Marketing Professional Services** Sem. 2. Class 2, cr. 2. Prerequisite: PHAD 464.

Application of marketing principles, strategies, and techniques in developing, implementing, marketing, and evaluating professional pharmacy services. Special emphasis is placed on the creation of innovative services that target unmet patient needs. Professor Abel.

**PHAD 685 Pharmaceutical Marketing Case Studies** Sem. 1. Class 3, cr. 3. Prerequisite: PHAD 482 or equivalent.

Current and classical cases in marketing and government regulation in the field of pharmacy. Staff.

**PHAD 690 Special Problems** Sem. 1. Lab. 6, cr. 1–3.

Individual investigations in pharmacy marketing, retailing, and management.

**PHAD 691 Special Problems** Sem. 2. Lab. 6, cr. 2.

Continuation of PHAD 690.

**PHAD 696 Seminar in Pharmacy Administration** Sem. 1 and 2. Class 1, cr. 0 or 1. (May be repeated for credit.)

Selected topics on current research, teaching methods, and contemporary problems in management and marketing. Professor Mason and staff.