

**SCHOOL OF PHARMACY
DOCTOR OF PHARMACY PROGRAM**

(The Pharmacy curriculum is subject to change without notice.) Electives offered by the Program in Health Care Ethics, Humanities and Law are listed under Preventive Medicine in the School of Medicine and Graduate School sections. These courses are offered on an interdisciplinary basis; students in all UCD-Anschutz Medical Campus schools are encouraged to participate.

FALL SEMESTER

- PHRD 5000 Introduction to Pharmacy Practice** **2.0 cr.**
Catherine Jarvis, Pharm.D. (Fall) Prerequisites – P1 status.
This course uses large group didactic discussion, small group problem-based learning, self-learning and outside activities. The focus is to provide students the opportunity to learn basic skills needed for success in the professional pharmacy curriculum and in their academic careers.
- PHRD 5100 Professional Skills Development I** **3.0 cr.**
Connie Valdez, Pharm.D. (Fall) Prerequisites – PHRD 5000, P1 status.
This course is the first in a five-semester longitudinal course sequence intended to develop a broad range of skills necessary for current and future pharmacy practice. It is designed to parallel the didactic portion of the curriculum.
- PHRD 5200 Professional Career Development** **1.0 cr.**
Robert Maclaren, Pharm.D. (Fall) Prerequisites – PHRD 5000, P1 status.
Introduces students to selected opportunities and current issues related to professional careers in pharmacy. This course will therefore consist of a series of presentations by faculty and guest lecturers highlighting the multifaceted scope of contemporary pharmacy practice.
- PHRD 5300 Experiential Practice I** **1.0 cr.**
Christopher J. Turner, B. Pharm., Ph.D. (Fall) Prerequisites – PHRD 5000, P1 status.
These two sequential (Fall P1, Spring P1) Pass/Fail format introductory pharmacy practice experience (IPPE) courses are comprised of traditional introductory and didactic classes, multiple periods of experiential training, and writing and other assignments.
- PHRD 5400 Drug Information** **1.0 cr.**
Hilda Ndikum, Pharm.D. (Fall) Prerequisites – PHRD 5000 P1 status.
This course is designed to introduce concepts and skills required to locate and evaluate drug literature and to respond to drug information requests in an efficient manner.
- PHRD 5410 Public Health, Health Economics & Health Policy** **2.0 cr.**
Robert Page, Pharm.D. (Fall) Prerequisites – PHRD 5000, P1 status.
Knowledge of key concepts of health care economics is essential for successful career development. This course introduces students to these concepts, and provides the background necessary for future courses concerning the structure and financing of health care.
- PHRD 5500 Pharmacy Law** **3.0 cr**
Gina Moore, Pharm.D. (Fall) Prerequisites – PHRD 5000, P1 status.
The course begins with an introduction to law, including the Constitution, the role of laws and regulations, the judicial system and process, and administrative agencies, with emphasis on regulation of business in general and pharmacy practice in particular.
- PHRD 5600 Science Foundations I** **3.0 cr.**
Tom Anchordoquy Ph.D. (Fall) Prerequisites – PHRD 5000, P1 status.
The main goal of this course is to relate general principles of chemistry and energetics (thermodynamics and kinetics) to drug stability and bioavailability, pharmacologic action, and interactions with biological macromolecules.
- PHRD 5610 Science Foundations II** **4.0 cr.**
David Bain, Ph.D. (Fall) Prerequisites – PHRD 5600, P1 status.
The goals of this course are to build a strong knowledge base in biochemistry and cell biology and link biochemical principles to cellular function, describe how various diseases and errors in metabolism relate to biochemical defects in the cell.
- PHRD 6100 Professional Skills Development III** **3.0 cr.**
Brian Hemstreet, Pharm.D.(Fall) Prerequisites – PHRD 5150, P2 status.
This course is the third in a five-semester longitudinal course sequence intended to develop a broad range of skills necessary for current and future pharmacy practice. It is designed to parallel the didactic portion of the curriculum.
- PHRD 6200 Instructional Methods I** **1.0 cr**
David Thompson, Ph.D. (Fall) Prerequisites – P2 status
This course is intended to reinforce the student's understanding of techniques that are used to develop and effectively present a relevant healthcare topic and prepare the student for future presentations and seminars.

- PHRD 6300 Experiential Practice III** **2.0 cr.**
Sam Ellis, Pharm.D. (Fall) Prerequisites – PHRD 5350, P2 status.
The first of the three, sequential, introductory pharmacy practice experience (IPPE) courses are that comprised of introductory classes, multiple periods of experiential training in a variety of practice settings, presentations by external speakers, writing and self-learning assignments, and exams.
- PHRD 6400 Biostatistics** **2.0 cr.**
Rob Valuck, Ph.D. (Fall) Prerequisites: PHRD 5450, P2 status.
This course is designed to introduce students to the quantitative methods most commonly used in applied clinical research and prepare them to interpret the results, and evaluate the appropriateness of statistical analyses used in pharmacotherapy research studies.
- PHRD 6500 Interprofessional Ethics** **.7 cr.**
Catherine Jarvis, Pharm.D. (Fall) Prerequisites: PHRD 5550, P2 status.
A course designed as a continuation of PHRD 5550.
- PHRD 6600 Clinical Science Foundations** **3.0 cr.**
David Thompson, Ph.D. (Fall) Prerequisites – PHRD 5650, P2 status.
This course is divided into two distinct sections: (i) Biopharmaceutics and Pharmacokinetics, which focuses on the application of basic principles of these disciplines to the clinical use of pharmacological agents with the object of optimizing drug therapy.
- PHRD 6700 Integrated Organ Systems III/IV** **5.0 cr.**
Joseph Saseen, Pharm.D. (Fall) Prerequisites – PHRD 5750, 5760, P2 status.
This first part of this course provides students with foundational knowledge of pharmacology and medicinal chemistry of diuretics and pathophysiology and therapeutics of acute and chronic renal failure. The second part deals with the cardiovascular system in health and disease.
- PHRD 6720 Integrated Organ Systems V** **4.0 cr.**
Robert Page, Pharm.D. (Fall) Prerequisites – PHRD 5750, 5760 P2 Status.
This class is intended to provide the student with an understanding of the therapeutic applications of drugs which modify cardiac and pulmonary function. Emphasis in this class will be placed on cardiac disease and pulmonary diseases.
- PHRD 7100 Professional Skills Development V** **3.0 cr.**
Joseph Vandegriende, PhD, (Fall) Prerequisites – PHRD 6150, P3 status.
This course is the fifth in a five-semester longitudinal course sequence intended to develop a broad range of skills necessary for current and future pharmacy practice. It is designed to parallel the didactic portion of the curriculum.
- PHRD 7200 Seminar** **1.0 cr.**
Jacci Bainbridge, Pharm.D. (Fall) Prerequisites – PHRD 6250, P3 status.
This one credit hour course will provide the Pharm.D. student the opportunity to participate in a formal, weekly seminar series as a speaker, self-evaluator, active member of the audience, and session coordinator.
- PHRD 7300 Experiential Practice V** **2.0 cr.**
Chris Turner, Ph.D. (Fall) Prerequisites – PHRD 6350, P3 status.
The third of the sequential introductory pharmacy practice experience (IPPE) courses that are comprised of introductory classes, multiple periods of experiential training in a variety of practice settings, presentations by external speakers, writing and self-learning assignments, and exams.
- PHRD 7400 Pharmacoeconomics** **2.0 cr.**
Anne Libby, Ph.D. (Fall) Prerequisites – PHRD 6450, P3 status.
This course will introduce the concepts of Pharmacoeconomics in a manner that will build upon the student's previous exposure to evidence-based pharmacy practice, health economics and the health care system.
- PHRD 7700 Integrated Organ Systems IX** **4.0 cr.**
Laura Borgelt, Pharm.D. (Fall) Prerequisites – PHRD 6750, PHRD 6760, PHRD 6770, P3 status.
This course is divided into four sections based on organ system (i.e. 1-endocrine (diabetes); 2-ophthamology, otics, and dermatology; 3-endocrine (hormones and women's health); and 4-osteoporosis, corticosteroids, and genitourinary).
- PHRD 7710 Integrated Organ Systems X** **4.0 cr.**
Doug Fish, Pharm.D. (Fall) Prerequisites – PHRD 6750, PHRD 6760, PHRD 6770, P3 status.
Class is intended to provide student with an understanding of (i) the functioning of the immune system in health and disease, (ii) the role of pathogens in causing infections, and (iii) the therapeutic applications of antimicrobial agents in combating infections.
- PHRD 7720 Integrated Organ Systems XI** **3.0 cr.**
Ty Kiser, Pharm.D. (Fall) Prerequisites – PHRD 7710, P3 status.

Continuation of the 7710 second part of the semester.

This course is intended to provide the student with an understanding of (i) the biology of human pathogens, (ii) the role and mechanisms of various pathogens in causing infections.

PHRD 7855 Independent Study Elective 1.0-4.0 cr.

Joseph Saseen, Pharm.D. (Fall, Spring) Prerequisite – P3 status. Per Curriculum Committee approval

PHRD 7856 Independent Study 2.0 cr.

Various Faculty. (Fall, Spring) Prerequisites – P3 status. Per Curriculum Committee approval

PHRD 7895 Medical Spanish 2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This Beginning Medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 7896 Intermediate Medical Spanish 2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This intermediate medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with intermediate conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 8703 PharmD Clerkship III 6.0 cr.

Christopher Turner, Ph.D. (Fall) Prerequisite – P4 status.

PHRD 8704 PharmD Clerkship IV 6.0 cr.

Christopher Turner, Ph.D. (Fall) Prerequisite – P4 status.

PHRD 8705 PharmD Clerkship V 6.0 cr.

Christopher Turner, Ph.D. (Fall) Prerequisite – P4 status.

SPRING SEMESTER

PHRD 5150 Professional Skills Development II 3.0 cr.

Connie Valdez, Pharm.D (Spring) Prerequisites – PHRD 5100

Second semester of three-year course intended to develop broad range of skills necessary for current and future pharmacy practice. Designed to parallel the didactic portion of curriculum, integrating and applying essential knowledge, skills and attitudes required for successful professional career.

PHRD 5350 Experiential Practice II 1.0 cr.

Catherine Jarvis, Pharm.D. (Spring) Prerequisites – PHRD 5300

This course focuses on service learning. Each pharmacy student will be partnered with a small group of elementary school students to teach a series of six general nutrition and physical activity modules.

PHRD 5450 PHC II: US Health Care Sector 2.0 cr.

Kavita Nair, Pharm.D. (Spring) Prerequisites – PHRD 5400

The goal of the course is to educate students about the complexities of the health care delivery system. With an increasing emphasis on prescription medications, now, more than ever, pharmacists are an integral part of the health care system.

PHRD 5550 Interprofessional Healthcare Ethics .6 cr.

Jackie Glover, PhD. (Spring) Prerequisites – PHRD 5000, P1 status.

A course designed to provide students with foundational knowledge and skills in responsible professional behavior that will enable them to competently reflect upon, address and resolve the ethical and social/cultural issues students will confront during their training and professional practice.

PHRD 5650 Principles of Drug Action 4.0 cr.

Christine Aquilante, Pharm.D. (Spring) Prerequisites – PHRD 5600; PHRD 5610

Building upon Science Foundations from last semester, this course aims to introduce the student to basic pharmacodynamic and pharmacokinetic determinants of drug action, drug interactions, and the genetic basis for inter-individual differences in response to drug efficacy and toxicity.

PHRD 5750 Integrated Organ System I 4.0 cr.

David Thompson, Ph.D. (Spring) Prerequisites – PHRD 5600; PHRD 5610

IOS1 introduces students to human physiology through a systematic study of the nervous, motor, cardiovascular, renal, endocrine and gastrointestinal systems.

PHRD 5760 Integrated Organ System II 3.0 cr.

David Thompson, Ph.D. (Spring) Prerequisite – PHRD 5750

Class is intended to provide student with understanding of (i) physiology and pathophysiology of autonomic nervous system, nervous somatic system and autacoids, (ii) importance of drug chemical structure on pharmacological

and therapeutic actions, (iii) therapeutic applications of drugs which influence or mimic these systems.

- PHRD 6150 Professional Skills Development IV** **3.0 cr.**
Connie Valdez, Pharm.D. (Spring) Prerequisites – PHRD 6100, P2 status.
This is the fourth in a five-semester longitudinal course sequence intended to develop a broad range of skills necessary for *current* and *future* pharmacy practice. It is designed to parallel the didactic portion of the curriculum.
- PHRD 6250 Instructional Methods II** **1.0 cr.**
Wesley Nuffer, Pharm.D. (Spring) Prerequisites – PHRD 7200, P2 status.
This course is intended to reinforce the student's understanding of techniques that are used to develop and effectively present a relevant healthcare topic and prepare the student for future presentations and seminars.
- PHRD 6350 Experiential Practice IV** **2.0 cr.**
Christopher Turner, Ph.D. (Spring) Prerequisites – PHRD 6300, P2 status.
Second year course builds on the first year experiential program to further develop understanding of professional and general competencies required to practice pharmacy and to increase the skill level of students in the application of these competencies in pharmacy practice.
- PHRD 6450 Pharmacy and Health Care IV: Informatics** **1.0 cr.**
Hilda Ndikum, Pharm.D. (Spring) Prerequisites – PHRD 6400, P2 status.
This course builds upon previous introductory courses in drug literature evaluation and evidence-based practice.
- PHRD 6750 Integrated Organ System VI: Immunology, Hema, Onco, Rheum** **4.0 cr.**
Cindy O'Bryant, Pharm.D. (Spring) Prerequisites - PHRD 6700, 6720, P2 status.
This course covers the normal immune and hematopoietic systems, immunopharmacology and the pathophysiology of diseases that fall into two conceptually distinct, but often overlapping and interrelated areas – malignancies of solid organ origin and diseases of the immune system.
- PHRD 6760 Integrated Organ System VII: GI, Nutrition** **2.0 cr.**
Rob Maclaren, Pharm.D. (Spring) Prerequisites – PHRD 6750, P2 status.
This course is intended to provide the student with an understanding of (i) the functioning of nutrition and the gastrointestinal system in health and disease.
- PHRD 6770 Integrated Organ System VIII: Central Nervous System** **4.0 cr.**
Jacci Bainbridge, Pharm.D. (Spring) Prerequisites – PHRD 6750, 6760, P2 status.
This class is intended to provide the student with an understanding of the functioning of the central nervous system (CNS) in health and disease.
- PHRD 7250 Seminar** **1.0 cr**
Samuel Ellis, Pharm.D. (Spring) Prerequisite - P3 status. Continuation of PHRD 7200.
This one credit hour course will provide the Pharm.D. student the opportunity to participate in a formal, weekly seminar series as a speaker, self-evaluator, active member of the audience, and session coordinator.
- PHRD 7350 Experiential Practice VI** **2.0 cr.**
Chris Turner, Ph.D. (Spring) Prerequisites – PHRD 7300, P3 status.
This 2 credit hour course will comprise one period for course introduction and 20 hours of experiential training at a non-pharmacy patient care site. Students will be assigned a non-pharmacist preceptor at their practice site.
- PHRD 7650 Comprehensive Patient Care I** **9.0 cr.**
Joseph Saseen, Pharm.D. (Spring) Prerequisite - P3 status
Comprehensive Patient Care is a Pass/Fail capstone course designed to lend continuity and cohesiveness to the entire curriculum, through integration and application of essential knowledge, skills and attitudes required for a successful professional career.
- PHRD 7850 Geriatric Pharmacy Elective** **2.0 cr.**
Sunny Linnebur, Pharm.D. (Spring) Prerequisite - P3 status.
This course is intended to provide the student with an advanced understanding of pharmacotherapy in older adults as well as common medical, psychological, and social issues encountered when caring for older adults.
- PHRD 7855 Independent Study Elective** **1.0-4.0 cr.**
Joseph Saseen, Pharm.D. (Fall, Spring) Prerequisite –P3 status. Per Curriculum Committee approval
- PHRD 7856 Independent Study** **2.0 cr.**
Various Faculty. (Fall, Spring) Prerequisites – P3 status. Per Curriculum Committee approval
- PHRD 7857 Compounding Pharmacy Elective** **2.0 cr.**
Connie Valdez, Pharm.D. (Spring, Summer) Prerequisites – P3 status.
An elective course to offer compounding skills for pharmacy students.
- PHRD 7858 Kaiser Permanente Managed Care Independent Study** **2.0 cr.**

Catherine Jarvis, Pharm.D. (Spring) Prerequisite – P3 status.

PHRD 7860 Special Topics in Complementary and Alternative Medicine 2.0 cr.

Monika Nuffer, Pharm.D. (Spring, Summer) Prerequisite – P3 status.

This course is designed to develop a broad knowledge base in the field of Complementary and Alternative Medicine (CAM). This course will cover common vitamins and minerals, herbal products, and bio-identical hormones, and core CAM domains and discussions of regulatory issues.

PHRD 7870 Pediatric Pharmacy Practice 2.0 cr.

Catherine Jarvis, Pharm.D. (Spring) Prerequisite – P3 status.

This course will be offered to students interested in developing and fostering their knowledge and assessment of childhood diseases and pharmacotherapy. Clinical pharmacy specialists and staff from the Children's Hospital of Denver will teach this course.

PHRD 7875 Pharmacy Management Elective 2.0 cr.

Gina Moore, Pharm.D. (Spring) Prerequisites – P3 status.

An introduction to the principles, skills, and issues important to the successful management of a pharmacy enterprise. While the course is largely concerned with application to community pharmacy, relevant comparisons will be made for the hospital pharmacy setting.

PHRD 7880 Women's Health Elective 2.0 cr.

Laura Borgelt, Pharm.D. (Spring) Prerequisite – P3 status.

This course will address the clinical, social, economic, and ethical aspects of women's health care.

PHRD 7885 Acute Care Pharmacotherapy 2.0 cr.

Doug Fish, Pharm.D. (Spring) Prerequisite – P3 status.

Pharmacology and appropriate clinical use of agents used in the treatment of selected acute disorders found in hospitalized patients. The course will also focus on the comprehensive nature of these acute disorders. Recent advances in pharmacotherapy, patient-specific management strategies, and controversial issues will be included and emphasized.

PHRD 7895 Medical Spanish 2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This Beginning Medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 7896 Intermediate Medical Spanish 2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This intermediate medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with intermediate conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 8100 Drug Information Portfolio 2.0 cr.

Christopher Turner, Pharm.D. (Spring) Prerequisite – P4 status.

This experiential drug information component of the curriculum is conducted through a longitudinal approach during the clerkship year. Each student will be responsible to develop a portfolio documenting his/her drug information-related activities while on various rotations.

PHRD 8706 PharmD Clerkship VI 6.0 cr.

Christopher Turner, Ph.D. (Spring) Prerequisite – P4 status.

PHRD 8707 PharmD Clerkship VII 6.0 cr.

Christopher Turner, Ph.D. (Spring) Prerequisite – P4 status.

PHRD 8708 PharmD Clerkship VIII 6.0 cr.

Christopher Turner, Ph.D. (Spring) Prerequisite – P4 status.

SUMMER SEMESTER

PHSC 3030 Introduction to Pharmaceutical Sciences 6.0 cr.

B. Brunson. (Summer) Prerequisites - Instructor approval.

Comprehensive course that consists of Biochemistry, Physiology, Pharmaceutics, and preceptor experience. Course is designed to integrate learning skills, problem solving and critical thinking skills with course content and offer students a preview into the diverse options available in pharmacy practice.

PHRD 7857 Compounding Pharmacy Elective 2.0 cr.

Connie Valdez, Pharm.D. (Spring, Summer) Prerequisites – P3 status.

An elective course to offer compounding skills for pharmacy students.

PHRD 7860 Special Topics in Complementary and Alternative Medicine 2.0 cr.

Monika Nuffer, Pharm.D. (Spring, Summer) Prerequisite – P3 status.

This course is designed to develop a broad knowledge base in the field of Complementary and Alternative Medicine (CAM). This course will cover common vitamins and minerals, herbal products, and bio-identical hormones, and core CAM domains and discussions of regulatory issues.

PHRD 7895 Medical Spanish

2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This Beginning Medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 7896 Intermediate Medical Spanish

2.0 cr.

Connie Valdez, Pharm.D. (Fall, Spring, Summer) Prerequisite – P3 status.

This intermediate medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with intermediate conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential.

PHRD 8701 PharmD Clerkship I

6.0 cr.

Christopher Turner, Ph.D. (Summer) Prerequisite – P4 status.

PHRD 8702 PharmD Clerkship II

6.0 cr.

Christopher Turner, Ph.D. (Summer) Prerequisite – P4 status.