

Thomas J. Long School of Pharmacy & Health Sciences, University of the Pacific

Doctor of Pharmacy Curriculum

Approved 6/25/08, Revised 3/17/2009, Implementation Fall 2009

Semester, Course Number & Course Name		Units	Unit Totals
SEMESTER I			19
PHRM 111	Pharmacy Practice & Professionalism	3	
PHRM 112	Dispensing, Compounding & Calculations	3	
PHRM 113	Molecular & Cellular Biochemistry	4	
PHRM 114	Physical Pharmacy & Dosage Forms	5	
PHRM 115	Nonprescription Therapy & Self Care	2	
PHRM 118	Practicum I	2	
SEMESTER II			18
PHRM 121	Informatics, Statistics & Research Design	3	
PHRM 122	Physiology & Pathophysiology I	5	
PHRM 123	Physiology & Pathophysiology II	5	
PHRM 124	Drug Metabolism & Disposition	3	
PHRM 129	Community I IPPE	2	
SEMESTER III			16-18
PHRM 134	Pharmacokinetics & Advanced Drug Delivery Systems	4	
PHRM 135	Pharmacology & Medicinal Chemistry I	4	
PHRM 136	Pharmacology & Medicinal Chemistry II	4	
PHRM 138	Practicum II	2	
PHRM 139	Geriatrics IPPE #	2	
	Electives(s) *	0-2 *	
SEMESTER IV			17-19
PHRM 142	Physiology & Pathophysiology III	5	
PHRM 145	Pharmacology & Medicinal Chemistry III	4	
PHRM 146	Therapeutics I Neuro-Psychiatry	4	
PHRM 147	Therapeutics II GI/Hepatic/Nutrition	2	
PHRM 149	Hospital IPPE #	2	
	Electives(s) *	0-2 *	
SEMESTER V			16-18
PHRM 151	Pharmacoeconomics, Benefits & Outcomes	2	
PHRM 152	Pharmacy Law & Ethics	4	
PHRM 156	Therapeutics III Cardiology	4	
PHRM 157	Therapeutics IV Renal/Respiratory	3	
PHRM 158	Practicum III	1	
PHRM 159	Community II IPPE #,@	2	
	Electives(s) *	0-2 *	
SEMESTER VI			15-17
PHRM 161	Pharmacy Management	2	
PHRM 165	Therapeutics V Infectious Disease	4	
PHRM 166	Therapeutics VI Oncology/Transplantation	3	
PHRM 167	Therapeutics VII Endocrine/Musculoskeletal	4	
PHRM 168	Practicum IV	1	
PHRM 169	Health Care Outreach IPPE #,\$	1	
	Electives(s) *	0-2 *	
SEMESTER VII & VIII			36
PHRM 171	Internal Medicine APPE	6	
PHRM 172	Ambulatory Care APPE	6	
PHRM 173	Hospital Pharmacy APPE	6	
PHRM 174	Community Pharmacy APPE	6	
PHRM 184	Elective APPE I	6	
PHRM 185	Elective APPE II	6	
TOTAL (includes 4 units of electives in Semesters I-VI)			141

APPE = Advanced Pharmacy Practice Experience; IPPE = Introductory Pharmacy Practice Experience

* Each student must complete a total of at least 4 units of electives during Semesters I to VI.

IPPE II, III, IV and V may be taken in a different semester than indicated.

@ PHRM 160 Practice-Based IPPE may be taken instead of PHRM 159

\$ PRAC 143 Health Care Outreach IPPE – Medicare Part D may be taken instead of PHRM 169

PHRM 111. Pharmacy Practice & Professionalism (3)

An introduction to the roles and responsibilities of the pharmacist in general and in various practice settings with a focus on leadership and professional development. *Prerequisite:* . Admission to the Doctor of Pharmacy Program.

PHRM 112 Dispensing, Compounding and Calculations (3)

This course will present mathematical concepts as they apply to the practice of pharmacy. The course will also present information on the techniques needed for the proper compounding and dispensing of medication as well as those techniques needed for communicating effectively with patients and health care professionals.

Prerequisite: Admission to the Doctor of Pharmacy program.

PHRM 113 Molecular and Cellular Biochemistry (4 units)

A conceptual study of cellular function and control mechanisms at the molecular level. *Prerequisite:* Admission to the Doctor of Pharmacy program.

PHRM 114 Physical Pharmacy and Dosage Forms (5 units)

A study of dosage forms and the relationship between the physicochemical properties of drugs and drug reaction.

Prerequisite: Admission to the Doctor of Pharmacy program.

PHRM 115 Nonprescription Therapy and Self Care (2 units)

Principles of triage and self care using non-prescription pharmacotherapy and dietary supplements. *Prerequisite:* Admission to the Doctor of Pharmacy Program.

PHRM 118 Practicum I (2 units)

Pharmacy practice skills and knowledge will be developed through completion of self-study modules and guided practice simulations. The practicum experiences relate to effective patient counseling for the most commonly prescribed and select non-prescription medications, smoking cessation products, and immunizations in addition to application of appropriate techniques for measurement of blood pressure, blood glucose and administration of immunizations for adults. *Prerequisite:* Admission to the Doctor of Pharmacy Program.

PHRM 121 Informatics, Statistics & Research Design (3 units)

Students will develop an understanding of the availability, selection and use of electronic and printed sources of medical and pharmacy information. Approaches to effectively responding to drug information questions in addition to analyzing and critiquing medical and pharmacy literature based on knowledge of the essentials of study design and statistics. Students will also understand the research steps prior to and following drug approval by the Food and Drug Administration. *Prerequisite:* Successful completion of (passing grade in) all required courses in Semester 1 in the Doctor of Pharmacy program.

PHRM 122 Physiology & Pathophysiology I (5 units)

An integrated study of the cellular, anatomical, physiological, and pathophysiological components of the nervous and gastrointestinal systems. *Prerequisite:* Successful completion of (passing grade in) all required courses in Semester 1 of the Doctor of Pharmacy program. Concurrent enrollment or prior successful completion of PHRM 123 Physiology & Pathophysiology II.

PHRM 123 Physiology & Pathophysiology II (5 units)

An integrated study of the cellular, anatomical, physiological, and pathophysiological components of the pulmonary, cardiovascular and renal systems. *Prerequisite:* Successful completion of (passing grade in) all required courses in Semester 1 of the Doctor of Pharmacy program. Concurrent enrollment or prior successful completion of PHRM 123 Physiology & Pathophysiology I.

PHRM 124 Drug Metabolism and Disposition (3 units)

A continuation of PHAR 114 (Physical Pharmacy and Dosage Form) utilizing the LADME framework (Liberation, Absorption, Distribution, Metabolism, and Excretion) to understand the biopharmaceutic, biometabolic and pharmacokinetic concepts underlying drug action. *Prerequisite:* Successful completion of (passing grade in) all required courses in Semester 1 of the Doctor of Pharmacy program.

PHRM 129 Community I Introductory Pharmacy Practice Experience (2 units)

A practice-based introductory experience focusing on the role of the Pharmacist/Pharmacy Intern in a community pharmacy practice. This course is designed to allow students to participate in the delivery of pharmaceutical care. *Prerequisite:* Successful completion of (passing grade in) all required courses in Semester 1 of the Doctor of Pharmacy Program Current Pharmacy Intern license

PHRM 134 Pharmacokinetics & Advanced Drug Delivery Systems (4 units)

A continuation of PHRM 114 Physical Pharmacy & Dosage Forms and PHRM 124 Drug Metabolism & Disposition utilizing the LADME framework (Liberation, Absorption, Distribution, Metabolism, and Excretion) to understand biopharmaceutic and pharmacokinetic/pharmacodynamic principles governing drug behavior in the body.

Additionally, the design of modified release drug delivery systems will be covered. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 2 in the Doctor of Pharmacy program*

PHRM 135 Pharmacology & Medicinal Chemistry I (4 units)

A continuation of PHRM 114 Physical Pharmacy & Dosage Forms and PHRM 124 Drug Metabolism & Disposition utilizing the LADME framework (*L*iberation, *A*bsorption, *D*istribution, *M*etabolism, and *E*xcretion) to understand biopharmaceutic and pharmacokinetic/pharmacodynamic principles governing drug behavior in the body. Additionally, the design of modified release drug delivery systems will be covered. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 2 in the Doctor of Pharmacy program.*

PHRM 136 Pharmacology & Medicinal Chemistry II (4units)

The second course in the Pharmacology and Medicinal Chemistry series, effects of antimicrobial, hematologic, and gastrointestinal therapeutic agents and the mechanisms whereby these effects are induced. Drug classes will be presented to illustrate the effects of drug classes in the treatment of diseases. The mechanisms of drug toxicity is also covered. *Prerequisite: Successful completion of (passing grade in) all required courses in Semester 1 to 2 of the Doctor of Pharmacy program*

PHRM 138 Practicum II (2 units)

Students will develop communication, assessment and documentation abilities to prepare them for didactic courses and practice experience. Students will learn to conduct a patient history, perform basic physical examinations, interpret common clinical laboratory data and diagnostic tests, and document pharmacist directed patient care using standardized approaches. Students will assess simulated patient scenarios using a standardized SOAP (subjective data, objective data, assessment, plan) format. Each student will be expected to demonstrate proficiency in each major ability. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 2 of the Doctor of Pharmacy program*

PHRM 139 Geriatrics Introductory Pharmacy Practice Experience (2 units)

An introductory practice-based introductory experience focusing on long term care, senior care, and geriatric patients. It is designed as a method to enhance each student's understanding of the role and responsibilities of pharmacists in the long term care and other geriatric care settings through the provision of pharmaceutical care to patients. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 and 2 of the Doctor of Pharmacy program*
Current Pharmacy Intern license

PHRM 142 Physiology & Pathophysiology III (5 units)

An integrated study of the cellular, anatomical, physiological, and pathophysiological components of the pulmonary, cardiovascular and renal systems. *Prerequisite: Successful completion of (passing grade in) all required courses in Semester 1 to 3 of the Doctor of Pharmacy program*

PHRM 145 Pharmacology & Medicinal Chemistry III (4 units)

The third course in the Pharmacology and Medicinal Chemistry series, effects of cardiovascular, endocrine, cancer chemotherapy, immunologic therapeutic agents and the mechanisms whereby these effects are induced. Drug classes will be presented to illustrate the effects of drug classes in the treatment of diseases. *Prerequisite: Successful completion of (passing grade in) all required courses in Semester 1 to 3 in the Doctor of Pharmacy Program*

PHRM 146 Therapeutics I Neuro-Psychiatry (4 units)

Students will develop the abilities to assess and develop patient-specific care plans for patients with specific conditions, diseases, disorders, and drug-induced problems utilizing basic and applied pharmaceutical science abilities. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 3 in the Doctor of Pharmacy program*

PHRM 147 Therapeutics II GI/Hepatic/Nutrition (2 units)

Students will develop the abilities to assess and develop patient-specific care plans for patients with gastrointestinal, hepatic, nutrition, and anemia conditions, diseases, disorders, and drug-induced problems utilizing basic and applied pharmaceutical science abilities. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 3 in the Doctor of Pharmacy program*

PHRM 149 Hospital Introductory Pharmacy Practice Experience (units 2)

Hospital introductory pharmacy practice experiences are a method to enhance each student's understanding of the role and responsibilities of pharmacists in the institutional setting and to gain experiences with the medication

use system and with other health care providers within a hospital. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 and 2 of the Doctor of Pharmacy program. Current Pharmacy Intern license*

PHRM 151 Pharmacoeconomics, Benefits & Outcomes (2 units)

The description and application of economic-based evaluation methods to pharmaceutical products, treatments and services. This includes understanding principles which will help decision makers maximize clinical and/or humanistic outcomes given economic constraints. Additionally, this course will provide an introduction to managed care and Medicare and its role in US health care delivery. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 4 in the Doctor of Pharmacy program*

PHRM 152 Pharmacy Law & Ethics (4 units)

Discussions and analysis of federal and state law, regulations, standards of practice, case law and ethics related to pharmacy practice and drug development and distribution. Focus is upon analyzing, understanding and applying these issues through case studies and hypotheticals. Considerable emphasis on professionalism and the historical events that have shaped today's professional pharmacy practice, as well as the drug development and distribution system. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 4 in the Doctor of Pharmacy program*

PHRM 156 Therapeutics III Cardiology (4 units)

Students will develop the abilities to assess and develop patient-specific care plans for patients with specific cardiovascular diseases utilizing basic and applied pharmaceutical science abilities. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 4 in the Doctor of Pharmacy program*

PHRM 157 Therapeutics IV Renal/Respiratory (units 3)

Students will develop the abilities to assess and develop patient-specific care plans for patients with renal and respiratory diseases. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients with renal and respiratory-related issues. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 4 in the Doctor of Pharmacy program*

PHRM 158 Practicum III (units 1)

Problem solving and critical thinking skills will be developed through the discussion and solution of complex cases and problems, with a focus on patients with multiple disorders and patients from various cultures or diverse populations and pediatric and geriatric populations. Problem solving and critical thinking skills will also be developed through the discussion and solution of cases and problems involving the clinical pharmacokinetics of select drugs, including the determination and documentation of initial dosing recommendations, dosage adjustments, drug concentration predictions, and monitoring plans. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 4 of the Doctor of Pharmacy program. Concurrent enrollment or prior successful completion of PHRM 156-157 Therapeutics III-IV.*

PHRM 159 Community II Introductory Pharmacy Practice Experience (2 units)

Community II introductory pharmacy practice experiences are a method to enhance each student's understanding of the role and responsibilities of pharmacists in the community setting and to gain experiences with the medication use system within a community pharmacy and expand the abilities developed in Community I introductory pharmacy practice experience. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 and 2 of the Doctor of Pharmacy Program. Current Pharmacy Intern license.*

PHRM 160 Practice-Based Introductory Pharmacy Practice Experience (2 units)

The Practice-Based introductory pharmacy practice experience is another method to enhance each student's understanding of the role and responsibilities of pharmacists and medication distribution and use process in any one of a variety of pharmacy practice settings. *Prerequisite: Successful completion of this course satisfies completion of PHRM 159 Community II Introductory Pharmacy Practice Experience.*

PHRM 161 Pharmacy Management (2 units)

An analysis of financial management principles applicable to pharmacy practice. An analysis of human resources management applicable to pharmacy practice. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 5 in the Doctor of Pharmacy program*

PHRM 165 Therapeutics V Infectious Diseases (4 units)

Infectious Disease Therapeutics is an integrated course where students will be taught to bring Medical Microbiology, Pharmacology, Physiology, Immunology, Pharmacokinetics, Pharmacodynamics and

Chemotherapeutics together in order to care for patients with treatable infectious diseases. Students will develop the ability to assess and develop patient-specific care plans for patients with infectious disease conditions, including prevention and drug-induced problems utilizing applied pharmaceutical science principles and knowledge. Lectures, readings, presentations and discussions will enable students to develop the ability to assess, manage, and document therapeutic care plans of varying complexity for patients with infectious disease
Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 5 in the Doctor of Pharmacy program

PHRM 166 Therapeutics VI Oncology/Transplantation (3 units)

Students will develop the abilities to assess and develop patient-specific care plans for patients with specific conditions, diseases, disorders of cancers and transplants and drug-induced problems utilizing basic and applied pharmaceutical science abilities. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients with cancers or transplants. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 5 in the Doctor of Pharmacy program*

PHRM 167 Therapeutics VII Endocrine/Musculoskeletal (4 units)

Students will develop the abilities to assess and develop patient-specific care plans for patients with endocrine, musculoskeletal, pain, dermatologic, and ophthalmic conditions, diseases, disorders, and drug-induced problems utilizing basic and applied pharmaceutical science abilities. Lectures, readings, and discussion will enable students to develop the abilities to assess, manage, and document simple to complex patients. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 5 in the Doctor of Pharmacy program*

PHRM 168 Practicum IV (1 unit)

This course is a continuation of Practicum III. Problem solving and critical thinking skills will be developed through the discussion and solution of complex cases and problems, with a focus on patients with multiple disorders and patients from various cultures or diverse populations and pediatric and geriatric populations. Problem solving and critical thinking skills will also be developed through the discussion and solution of cases and problems involving the clinical pharmacokinetics of select drugs, including the determination and documentation of initial dosing recommendations, dosage adjustments, drug concentration predictions, and monitoring plans. *Prerequisite: Successful completion of (passing grade in) all required courses in Semesters 1 to 5 of the Doctor of Pharmacy program. Concurrent enrollment or prior successful completion of PHRM 165-167 Therapeutics V-VII.*

PHRM 169 Health Care Outreach Introductory Pharmacy Practice Experience (1 unit)

Community health care outreach introductory pharmacy practice experiences are a method to enhance each student's understanding, participation, and commitment to enhancing the health of the public. Groups of students will work with community agencies and organizations in the development, organization, management, implementation, delivery, and assessment of health care outreach activities in local communities. Many of these activities will be managed through professional student organizations. Students will also reflect on their activities to determine the impact of those activities on the public and on themselves. *Prerequisite: Successful completion of (passing grade in) all required courses in Semester 1 of the Doctor of Pharmacy program Current Pharmacy Intern license, Current blood borne pathogen and CPR certifications*

PHRM 171 Internal Medicine APPE (6 units)

A clinical pharmacy practice rotation at an affiliated health care facility with emphasis on the medical management of disease states, rational drug therapy, and patient monitoring using the pharmaceutical care practice model. *Prerequisite: Successful completion of (passing grade in) all required courses and 4 units of elective courses in semesters 1 to 6 of the Doctor of Pharmacy program Satisfy academic standards for entry into advanced pharmacy practice experiences Satisfy the institution's policies and procedures on healthcare trainee or worker eligibility, such as background*

PHRM 172 Ambulatory Care APPE (6 units)

A clinical pharmacy practice rotation at an affiliated clerkship site with emphasis on providing pharmaceutical care for ambulatory care patients, including the medical management of disease states, rational drug therapy, and patient monitoring. *Prerequisite: Successful completion of (passing grade in) all required courses and 4 units of elective courses in semesters 1 to 6 of the Doctor of Pharmacy program. Satisfy academic standards for entry into advanced pharmacy practice experiences. Satisfy the institution's policies and procedures on healthcare trainee or worker eligibility, such as background checks and screenings, HIPAA training, etc. Valid pharmacy intern license.*

PHMR 173 Hospital Pharmacy APPE (6 units)

