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## Pharmacy (PHRX)

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*Dean:* James R. Halpert, Ph.D.

*Associate Dean:* Andrea K. Hubbard, Ph.D.

*Office:* Pharmacy/Biology Building, Room 351

For major requirements, see the School of Pharmacy section of this *Catalog*.

The following courses are open only to students enrolled in the School of Pharmacy.

### **3000. Cellular Biology**

~~(201)~~ Two credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Introduction to basic principles in cell biology, intracellular signaling, gene expression and biotechnology in the pharmaceutical sciences.

### **3001. Immunology**

~~(202)~~ Two credits. Prerequisite: PHRX 3000.

Principles of immunology underlying disease processes.

### **3002. Foundations in Bioorganic Chemistry**

~~(203)~~ Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Fundamental knowledge of medicinal and natural products chemistry, metabolic biotransformation, and drug design.

### **3003. Nutrition**

~~(204)~~ Two credits. Prerequisite: PHRX 3000, 3002.

Principles of enteral and parenteral nutrition related to prescription and non-prescription medication effects. Classification of nutrition status, and nutrition assessment. Identification of drug-nutrient deficiencies/interactions and preparation of disease-specific nutritional care plans. Evaluation, resources, and classification of complementary and alternative medicine (CAM).

### **3006. Drug Information I**

~~(206)~~ One credit. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

An introduction into identification, analysis and reporting of information from textbooks, online resources and journal articles designed to familiarize students with medical literature. Concepts of primary, secondary, and tertiary literature, peer review, drug information databases and medical literature databases.

### **3007. Drug Information II**

~~(207)~~ Two credits. Prerequisite: PHRX 3006.

Development of skills to identify and use information from primary literature in clinical or research practice and to assess research methodology, biostatistics, epidemiology in drug information literature.

### **3008. Pharmacy Communications**

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Basic principles of interpersonal communication, including effective questioning, empathic listening, reflective responding, and adherence techniques. Development of skills to achieve effective communication with patients and with other health care professionals. Students will have the opportunity to practice their patient counseling and interprofessional communication skills in a simulated environment.

### **3009. Principles of Drug Action**

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Fundamental mechanisms of drug actions and effects with emphasis on interactions with cellular macromolecules and resulting downstream signaling events. Autonomic drugs and nomenclature.

### **3011. Correlated Pharmacy Problem Solving I**

~~(211)~~ One credit. Prerequisite: PHRX 3008.

Small-group discussions to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

### **3020. Pharmacy Practice Experience I**

~~(221)~~ One credit. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; some activities (Introductory Pharmacy Practice Experiences) at selected community pharmacy practice sites.

### **3021. Pharmacy Practice Experience II**

~~(222)~~ Two credits. Prerequisite: PHRX 3020.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected community pharmacy practice sites.

### **3030. Pharmacokinetics/Biopharmaceutics**

~~(231)~~ Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Principles of pharmacokinetics and biopharmaceutics in the design of both dosage forms and dosing regimens.

### **3031. Foundations in Pharmaceutics I**

~~(232)~~ Four credits. Prerequisite: PHRX 3030.

Principles underlying the formulation, dissolution, stability and release of drug products for optimum delivery. Dosage forms discussed include colloids, suspensions, emulsions, suppositories, aerosols, ointments and transdermals.

### **3032. Dosage Forms Preparation Laboratory I**

~~(233)~~ One credit. Prerequisite: PHRX 3030.

Preparation of sterile and non-sterile dosage forms, with attention to solutions, solids and dispersed systems. A fee of \$20 is charged for this course.

### **3040. Neurology Module**

~~(241)~~ Four credits. Prerequisite: PHRX 3000, 3002, 3009.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to neurologic drug therapy management.

### **3050. Public Health & Healthcare Policy**

~~(255)~~ Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Provides students with: 1) an understanding of the core management principles used across pharmacy settings; 2) exposure to practical experiences on practice-specific management topics; and 3) application of pharmacy practice management principles to “real-world” management challenges.

### **3052. Hospital Pharmacy Practice**

One credit. Prerequisite: PHRX 3006; instructor consent.

Overview of the practice of hospital pharmacy. Medication management in the hospital, informatics and technology impact on hospital pharmacy practice, regulations and evidence based medicine on practice and improvements in patient care through clinical pharmacy.

### **3053. Evidence-Based Pharmacy**

Two credits. Prerequisite: Instructor consent; open only to students in pharmacy program. *Coleman, White*

Designed to facilitate student’s understanding of the need for and value of evidence-based practice, to describe steps and processes involved in conducting a systemic review and meta-analysis and to teach students how to critically assess the validity of systemic reviews and meta-analyses and their roles in shaping clinical practice.

### **3054. Drugs and Society**

Two credits. Prerequisite: Instructor consent; open only to students in pharmacy program. *Gerald*

Examination of the broad impact of drugs on society including health, athletic competition, lifestyle and appearance, literature, movies, reproduction and sexual behavior, drug abuse and advertising.

### **3055. Quantitative Pharmacy**

Two credits. Prerequisite: Instructor consent; open only to students in the pharmacy program.

Predominantly online course using hands-on patient case scenarios to refresh and strengthen confidence using mathematical calculations commonly utilized in pharmacy practice.

#### **3056. Medication Safety**

Two credits. Prerequisite: Instructor consent; open only to students enrolled in pharmacy program. *Wheeler*

Exposes students to the principles and processes involved with improving safety within medication use systems.

#### **3057. Discover the Leader Within**

One credit. Prerequisite: Open only to students enrolled in the School of Pharmacy. With a change in content, may be repeated for credit.

Students will read a popular leadership book and participate in activities focused on its content. Discussion posts, study guides and participation in in-class discussions. Applications to fundamental principles to pharmacy practice. Culminates with a discussion with the author or other leadership expert.

#### **4000. Pharmacoeconomics**

~~(205)~~ One credit. Prerequisite: ECON 1201; PHRX 4050.

Application of pharmacoeconomic principles to formulary management, health-related quality of life, cost-benefit analysis, and pharmacoeconomic literature analysis.

#### **4001W. Current Topics in Pharmacy**

Three credits. Prerequisite: PHRX 3006, 3007, 3008; ENGL 1010 or 1011 or 2011.

Presentation of a specific sub area of pharmacy with focus on biological, chemical, clinical/therapeutic, sociological or legal/ethical aspects of drugs, dosage forms or health care systems to improve the student's writing, presentation, and discussion skills.

#### **4010. Correlated Pharmacy Problem Solving II**

~~(212)~~ One credit. Prerequisite: PHRX 3011.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### **4011. Correlated Pharmacy Problem Solving III**

~~(213)~~ One credit. Prerequisite: PHRX 4010.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### **4020. Pharmacy Practice Experience III**

~~(223)~~ One credit. Prerequisite: PHRX 3021.

Development of patient care skills to include taking medication histories, assessing patient medication regimens relating to hypertension and taking blood pressure measurements. Emphasis on proper blood pressure monitoring techniques and issues in treating hypertension, interpersonal communication; some activities (Introductory Pharmacy Practice Experiences) at selected institutional (hospital) pharmacy practice sites.

#### **4021. Pharmacy Practice Experience IV**

~~(224)~~ Two credits. Prerequisite: PHRX 4020.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected institutional (hospital) pharmacy practice sites.

#### **4030. Foundations in Pharmaceuticals II**

~~(234)~~ Three credits. Prerequisite: PHRX 3031, 3032.

Principles and factors affecting performance of dosage forms classified as dispersed systems: suspensions, emulsions, suppositories, aerosols, ointments and transdermals.

#### **4031. Dosage Forms Preparation Laboratory II**

~~(235)~~ One credit. Prerequisite: PHRX 3031, 3032.

Dosage forms preparation and basic techniques for compounding sterile and non-sterile dosage forms. A fee of \$20 is charged for this course.

#### **4040. Psychiatry Module**

~~(242)~~ Five credits. Prerequisite: PHRX 3040.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to psychiatric drug therapy management.

#### **4041. Immunology Module**

~~(243)~~ Two credits. Prerequisite: PHRX 3001, 3040.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to immunologic drug therapy management.

#### **4042. Gastroenterology Module**

~~(244)~~ Two credits. Prerequisite: PHRX 4040, 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to gastroenterological drug therapy management.

#### **4043. Endocrine Module**

~~(245)~~ Three credits. Prerequisite: PHRX 4040, 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to endocrinologic drug therapy management.

#### **4044. Dermatology Module**

~~(246)~~ One credit. Prerequisite: PHRX 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics, and pharmacotherapy (including both prescription and non-prescription medications) as they apply to dermatologic drug therapy management.

#### **4050. Pharmacy Practice Management**

~~(256)~~ Two credits. Prerequisite: PHRX 3008, 3050.

Community pharmacy planning and operations including pharmacy financial management (institutional/community/long-term care), human resources, marketing and operations of chain and independent community pharmacy.

#### **4051. Pharmacy Law and Ethics**

~~(257)~~ Two credits. Prerequisite: PHRX 3050.

A study of federal and state pharmacy practice laws with regards to ethical principles of patient care.

#### **4052. Advanced Compounding**

Two credits. Prerequisite: PHRX 4031.

Advanced techniques and knowledge in prescription compounding will be applied to the preparation of extemporaneously prepared dosage forms that meet the needs of individual patients. A fee of \$10 is charged for this course.

#### **4053. All About E-Health**

Two credits. Prerequisite: PHRX 3006, 3007; instructor consent. *Smith*

Use of health information technology (electronic health records, e-prescribing, online health and drug information, remote disease monitoring, medication therapy management, medication safety) in patient care. A holistic view of these topics is examined from the consumer/patient, health care professional, payor and health system perspectives.

#### **4054. Urban Service Track**

One credit per semester. Prerequisite: Open to UConn Urban Health Scholars only. This course may be repeated for credit. *Dang*

An interprofessional program designed to develop future health professionals dedicated to caring for urban underserved populations and working in interprofessional teams.

#### 4055. Advanced Clinical Concepts in Pain Management

Two credits. Prerequisite: PHRX 3040; instructor consent. *Fitzgerald, Pham*

Emphasis is placed on evaluation of the pain patient, the pharmacology of analgesics, adjuvant agents and interventional techniques for the treatment of pain such as patient controlled analgesia, nerve blocks, intrathecal pumps, and alternative therapies (relaxation, Reike therapy, hypnosis, acupuncture). The role of the pharmacist in acute and chronic pain management, palliative care and special populations (pediatrics, geriatrics) will be addressed. Regulatory issues and “hot topics” such as addiction issues in pain management, health disparities in pain care, and pain contracts will also be discussed.

#### 4056. A Bar and Grill Approach to Outpatient Pharmacy Practice

(Formerly offered as PHRX 5053.) Two credits. Prerequisite: PHRX 3021.

Emphasis on developing skills and knowledge necessary to the practice of pharmaceutical care in an outpatient setting. Value to students seeking careers in ambulatory or community pharmacy.

#### 4057. Developing Pharmacy Leaders

Two credits. Prerequisite: PHRX 3021.

Provides training and experience in leadership skills to include identifying personal strengths, envisioning change, team building and advocacy in the field of pharmacy.

#### 4058. Pharmacy LEADERS Track

Two credits. Prerequisite: Enrollment in Pharmacy LEADERS Track.

Designed to supplement and support the Pharmacy LEADERS Track by developing knowledge, attitudes, and behaviors essential for leaders through leadership-related curricular and co-curricular activities, documentation of leadership experiences, self-reflection on leadership experiences, and presentation skills.

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#### 5010. Correlated Pharmacy Problem Solving IV

~~(214)~~ One credit. Prerequisite: PHRX 4011.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### 5011. Correlated Pharmacy Problem Solving V

~~(215)~~ One credit. Prerequisite: PHRX 5010.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### 5020. Pharmacy Practice Experience V

~~(225)~~ One credit. Prerequisite: PHRX 4021.

Development of patient care skills to include but not limited to taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected pharmacy practice sites.

#### 5021. Pharmacy Practice Experience VI

~~(226)~~ Two credits. Prerequisite: PHRX 5020.

Service Learning course designed to challenge students to gain a greater appreciation for the profession of pharmacy as it relates to their communities and the societal needs. Students will have the opportunity to work in an interprofessional environment with other health profession students and providers to assist the student in developing professional attitudes, judgment and skills needed to function as a team. Emphasis on interpersonal communication; activities at selected health related practice sites.

#### 5040. Cardiovascular Module

~~(247)~~ Four credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to cardiovascular drug therapy management.

**5041. Renal Module**

~~(248)~~ Two credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to renal disorders drug therapy management.

**5042. Respiratory Module**

~~(249)~~ Two credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to respiratory drug therapy management.

**5043. Infectious Disease Module**

~~(250)~~ Four credits. Prerequisite: PHRX 5040, 5041, 5042.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to infectious disease drug therapy management.

**5044. Hematology/Oncology Module**

~~(251)~~ Three credits. Prerequisite: PHRX 5040, 5041, 5042.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to hematologic/oncologic disorders drug therapy management.

**5045. Special Populations**

~~(253)~~ Four credits. Prerequisite: PHRX 3030, 3040, 4040, 4041, 4042, 4043, 4044, 5040, 5041, 5042.

Development of knowledge and skills necessary to make appropriate, patient-population specific, pharmacotherapeutic contributions to patient care.

**5046. Clinical Toxicology**

~~(254)~~ Two credits. Prerequisite: PHRX 3040, 4040, 4041, 4042, 4043, 4044.

Introduction to acute toxicity in humans to common drugs, chemicals and household products. Physical and laboratory assessment of common poisonings including the development of clinical management plans for common poisonings and the prevention of poisoning.

**5047. Pharmacy Practice Laboratory**

~~(258)~~ Three credits. Prerequisite: PHRX 3006, 3007, 3008, 3040, 3050, 4040, 4041, 4042, 4043, 4044, 4050, 4051.

Skills to provide pharmacist care in drug delivery and drug-distribution systems, the use of medication delivery and monitoring devices and the use of pharmacy references to drug information requests. Introduction to wellness screenings, vaccinations, patient education, collaborative practice agreements, and medication therapy management services. A fee of \$95 is charged for this course.

**5048. Patient Assessment**

~~(259)~~ Two credits. Prerequisite: PHRX 3003, 3006, 3007, 3040, 4040, 4041, 4042, 4043, 4044, 4050.

Completion of a "Pharmacist's Work-up of Drug Therapy" using the Helper/Strand concept of identifying and resolving drug-related-problems; patient assessment skills essential in the provision of pharmaceutical care to patients.

**5050. Pediatric Pharmacotherapy**

Two credits. Prerequisite: B.S. in Pharmacy Studies. *Ellis*

Extended therapeutic knowledge of common pediatric disease states and an understanding of some of the specific pharmacologic concerns in the pediatric population.

**5051. Careers in Pharmacy**

One credit. One class period. Prerequisite: B.S. in Pharmacy Studies. *Gerald*

Survey of career options available to Pharm.D. graduates and the broad role of pharmacy graduates in healthcare. Exploration and self-examination of critical professional and personal factors that will contribute to greater career satisfaction.

**5052. Pharmacotherapy of Diabetes Mellitus**

(219) Two credits. Prerequisite: PHRX 4043.

To enhance students' perception of diabetes mellitus as a multi-organ disease and to provide the necessary skills to recognize challenges to management, analyze laboratory data, and apply evidence-based medicine to real-world practicalities when developing a therapeutic plan.

#### **5054. Entrepreneurial Pharmacist**

Two credits. Prerequisite: Instructor consent; B.S. in Pharmacy Studies. *Tyczkowski*

Development of skills needed to notice trends and manage people and capital; acquisition of key attributes of an entrepreneur to be well poised for a dynamic and exciting career. This course will help develop business expertise through the use of readings, text and presentations of different pharmacy practice types.

#### **5055. Hot Topics in Infectious Diseases**

Two credits.

Introduces aspiring clinicians to how knowledge of basic microbiology, familiarity with the evolution of bacteria, and pharmacologic principles can be used to guide therapy in patients. Provides an overview of diseases and conditions caused by microorganisms not present in the ID module of the Doctor of Pharmacy curriculum.

#### **5070. Continuous Registration**

Zero credits. Prerequisite: B.S. in Pharmacy Studies and instructor consent. *Hubbard*

Allows continuous registration in the professional pharmacy program while enrolled in the dual degree programs of PharmD/MBA and PharmD/MPH.

#### **5100. Professional Experience in Community Pharmacy**

Four credits. Hours by arrangement. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on further development of skills in patient assessment and patient education in optimizing response to pharmacotherapy. Introduction to the administrative aspects of the provision of pharmaceutical care in the community pharmacy is provided.

#### **5101. Professional Experience in Institutional Pharmacy I**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in an institutional setting. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

#### **5102. Professional Experience in Ambulatory Care Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048. *Jeffery*

The student will apply knowledge of disease therapeutics and communication skills to the provision of pharmaceutical care in the ambulatory setting. Emphasis is on optimizing medication-related outcomes in patients through medication assessment, multidisciplinary treatment planning, efficacy and safety assessment, and patient education. Direct patient contact.

#### **5103. Professional Experience in General Medicine**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of therapeutics of general medical disorders to the provision of pharmaceutical care to general medicine inpatients. Emphasis is on rational selection and use of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

#### **5104. Professional Experience in Cardiology**

Four credits. Prerequisite: PHRX 5047, 5048. *White*

The student will apply knowledge of therapeutics of cardiovascular disorders to the provision of pharmaceutical care in cardiology patients. Emphasis is on optimization of medication-related outcomes in critically-ill cardiac patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5105. Professional Experience in Infectious Disease**

Four credits. Prerequisite: PHRX 5047, 5048. *Aeschlimann*

The student will apply knowledge of pharmacotherapy of infectious disease to the provision of pharmaceutical care to infectious disease inpatients. Emphasis is on optimization of medication-related outcomes in patients with serious infectious diseases through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5106. Professional Experience in Oncology**

Four credits. Prerequisite: PHRX 5047, 5048. *Pham*

The student will apply knowledge of therapeutics of adult neoplastic disorders to the provision of pharmaceutical care to oncology patients. Emphasis is on rational drug selection of curative or palliative medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5107. Professional Experience in Psychiatry**

Four credits. Prerequisite: PHRX 5047, 5048. *Caley*

The student will apply knowledge of the therapeutics of psychiatric disorders and communication skills to the provision of pharmaceutical care to psychiatric inpatients. Emphasis is on the optimization of medication-related outcomes in psychiatric patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5108. Professional Experience in Pediatrics**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to pediatric inpatients. Emphasis is on the optimization of medication-related outcomes in pediatric patients through medication assessment multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5109. Professional Experience in Geriatrics**

Four credits. Prerequisite: PHRX 5047, 5048. *Chapron, Jeffery*

The student will apply knowledge of therapeutics of chronic and acute disorders in the elderly to the provision of medication therapy management for this special population. Emphasis is on rational selection of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes in geriatric patients is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5110. Professional Experience in Community Practice II**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

A continuation of PHRX 5100, the student will expand the application of drug therapy knowledge and communication skills to the provision of patient centered care in a community pharmacy. Emphasis is on continued development of patient assessment and patient education skills in optimizing response to medications.

**5111. Professional Experience in Critical Care**

Four credits. Prerequisite: PHRX 5047, 5048. *White*

The student will apply knowledge of pharmacotherapy of major medical disorders and of post-surgical drug therapy to the provision of pharmaceutical care to critical care patients in medical, surgical, and specialized intensive care units. Emphasis is on optimization of medication-related outcomes in seriously ill patients through medication assessment, multidisciplinary treatment planning, and efficacy and safety monitoring. Direct patient contact.

**5114. Professional Experience in Emergency Medicine**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of pharmacotherapy of medical, surgical, toxicologic, and psychiatric emergencies to the provision of pharmaceutical care for adults and children treated in the emergency department. Emphasis is on optimization of medication-related outcomes in patients in need of emergency treatment, including medication assessment, efficacy and safety monitoring, and patient education. Direct patient contact.

**5115. Professional Experience in Home Health Care**



Four credits. Prerequisite: PHRX 5047, 5048. *Jeffery*

The student will apply knowledge of pharmacy practice and skills in patient interaction to the provision of pharmaceutical care to patients in their homes. Emphasis is on optimization of medication-related outcomes in patients with common medical disorders served by home health care pharmacists, including medication assessment, efficacy and safety monitoring, and patient education.

**5116. Professional Experience in Institutional Pharmacy II**

Four credits. Prerequisite: PHRX 5047, 5048, 5101. *Hritcko*

A continuation of PHRX 5101, the student will expand application of pharmacy knowledge and skills to the provision of pharmacy services in an institutional setting. Emphasis is on problem-solving project activity related to the provision of pharmaceutical care by the Department of Pharmacy.

**5117. Professional Experience in Industry**

Four credits. Prerequisite: PHRX 5047, 5048. *Chapron*

The student will apply knowledge of pharmacy and pharmaceutical science to the practice of pharmacy in the pharmaceutical industry. Emphasis is on development of skills needed in basic pharmaceutical science, information dissemination, drug development, and product marketing.

**5118. Professional Experience in Managed Care**

Four credits. Prerequisite: PHRX 5047, 5048. *Jeffery*

The student will apply pharmacy knowledge and communication skills to the practice of managed care pharmacy. Emphasis is on the development of strategies that optimize pharmacotherapy of major medical diseases, surgical procedures, and psychiatric disorders within the economic constraints of a managed care health care delivery system.

**5119. Professional Experience in Nuclear Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply pharmaceutical science knowledge and communication skills to the provision of pharmaceutical care in nuclear pharmacy. Emphasis is on optimization of therapeutic outcomes related to diagnostic and therapeutic use of radioisotopes, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5120. Professional Experience in Nutrition**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of therapeutics of nutritional disorders to the provision of pharmaceutical care to patients with these disorders. Emphasis is on optimization of medication-related outcomes in nutrition disorder patients through current and past medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5122. Professional Experience in a Skilled Care Nursing Facility**

Four credits. Prerequisite: PHRX 5047, 5048. *Chapron*

The student will apply knowledge of pharmacotherapy of medical diseases and psychiatric disorders and communication skills to patients in a skilled care nursing facility. Emphasis is on optimization of medication-related outcomes in skilled care nursing facility patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5123. Professional Experience in Surgery**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of pharmacotherapy to pre-surgical, surgical, and post-surgical use of drugs. Emphasis is on the optimization of medication-related outcomes in the surgical patient, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5124. Professional Experience in General Medicine II**

Four credits. Prerequisite: PHRX 5047, 5048. May be taken concurrently with PHRX 5103. *Hritcko*

A continuation of PHRX 5103, the student will expand, in depth and in breadth, the application of pharmacotherapy principles to the provision of pharmaceutical care to general medicine inpatients. Emphasis is on continued development of the process of rational drug selection that encompassed the use of medications in an effective, appropriate, safe, and cost effective manner. Direct patient contact.

**5125. Professional Experience in Ambulatory Care Pharmacy II**

Four credits. Prerequisite: PHRX 5047, 5048. May be taken concurrently with PHRX 5102. *Jeffery*

A continuation of PHRX 5102, the student will expand, in depth and in breadth, the application of pharmacotherapy principles to the provision of pharmaceutical care to general medicine outpatients. Emphasis is on continued development of the process of rational drug selection that encompassed the use of medications in an effective, appropriate, safe, and cost effective manner.

**5126 . Professional Experience in Pharmacist - Directed Anticoagulation Service**

Four credits. Prerequisite: PHRX 5047, 5048. *Chapron*

The student will apply knowledge of pharmacotherapy of acute and chronic thrombotic disorders to the provision of pharmaceutical care to patients requiring anticoagulation therapy. Emphasis is on the optimization of medication-related outcome in anticoagulated patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5128. Professional Experience in Hospice Care**

Four credits. Prerequisite: PHRX 5047, 5048. *Pham*

The student will apply knowledge of pharmacotherapy of the final stage of terminal disorders to the provision of pharmaceutical care to hospice patients requiring palliative therapy. Emphasis is on the optimization of medication-related outcome in hospice patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and family education. Direct patient contact.

**5129. Professional Experience in Sub-acute Care and Chronic Disease and Rehabilitative Medicine**

Four credits. Prerequisite: PHRX 5047, 5048. *Chapron*

The student will apply knowledge of pharmacotherapy of chronic and subacute disorders to the provision of pharmaceutical care to patients undergoing physical rehabilitation in a skilled nursing facility. Emphasis is on the optimization of medication-related outcome in rehabilitation patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5130. Professional Experience in HIV Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of HIV disease to the provision of pharmaceutical care to patients with HIV. Emphasis is on optimization of medication-related outcomes in patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5131. Professional Experience in Public Health**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy to the provision of pharmaceutical care to patients of diverse populations with various diseases. Emphasis is on optimization of medication-related outcomes in patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient/caregiver education. Direct patient contact.

**5132. Professional Experience in Diabetes Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of diabetes disorders to the provision of pharmaceutical care in diabetic patients. Emphasis is on optimization of medication-related outcomes in a spectrum of diabetic patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5133. Professional Experience in Clinical Toxicology Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of services to patients and caregivers of patients requesting assistance in addressing both acute and chronic toxicity situations in a variety of home, clinic and hospital settings in collaboration with other health professionals. Students will also participate in didactic sessions designed to increase their knowledge of toxic substances.

**5134. Professional Experience in Population Kinetics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the application of pharmacokinetic parameters for use in individual patients based on estimates from a larger population.

**5135. Professional Experience in Investigational Drugs**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmaceutical science knowledge and communication skills to the use of investigational drugs in pharmacy practice. Emphasis is on the process of randomization, patient selection and documentation of study procedures.

**5136. Professional Experience in Drug Information**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of drug information services in a variety of settings. Students will learn to follow site policies and procedures with respect to providing information subsequent to inquiries from preceptor site stakeholders.

**5137. Professional Experience in Pediatrics II**

Four credits. Prerequisite: PHRX 5047, 5048, 5108.

Building upon the experience gained from PHRX 5108, the student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to pediatric inpatients. Emphasis is on the optimization of medication-related outcomes in pediatric patients through medication assessment multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5138. Professional Experience in Industry II**

Four credits. Prerequisite: PHRX 5047, 5048, 5117.

Building upon the experience gained from PHRX 5117, the student will apply knowledge of pharmacy and pharmaceutical science to the practice of pharmacy in the pharmaceutical industry. Emphasis is on development of skills needed in basic pharmaceutical science, information dissemination, drug development, and product marketing.

**5139. Professional Experience in Pharmacy Association**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply their knowledge of the practice and profession of pharmacy to the provision of advocacy, organization and support for practicing pharmacist association members. Emphasis is on the communication of pharmacy's contribution and value to health care of society.

**5140. Professional Experience at the FDA**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills in a variety of settings within the Food and Drug Administration while learning about the regulatory process involved in drug development and marketing.

**5141. Professional Experience in Oncology II**

Four credits. Prerequisite: PHRX 5047, 5048, 5106.

Building upon the experience gained from PHRX 5106, the student will apply knowledge of therapeutics of adult neoplastic disorders to the provision of pharmaceutical care to oncology patients. Emphasis is on rational drug selection of curative or palliative medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5142. Professional Experience in Diabetes Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5132.

Building upon the experience gained from PHRX 5132, the student will apply knowledge of therapeutics of diabetes disorders to the provision of pharmaceutical care in diabetic patients. Emphasis is on optimization of medication-related outcomes in a spectrum of diabetic patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5143. Professional Experience in Psychiatry II**

Four credits. Prerequisite: PHRX 5047, 5048, 5107.

Building upon the experience gained from PHRX 5107, the student will apply knowledge of the therapeutics of psychiatric disorders and communication skills to the provision of pharmaceutical care to psychiatric inpatients. Emphasis is on the optimization of medication-related outcomes in psychiatric patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5144. Professional Experience in Geriatrics II**

Four credits. Prerequisite: PHRX 5047, 5048, 5109.

Building upon the experience gained from PHRX 5109, the student will apply knowledge of therapeutics of chronic and acute disorders in the elderly to the provision of pharmaceutical care in a skilled nursing facility. Emphasis is on rational selection of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes in geriatric patients is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5145. Professional Experience in a Skilled Care Nursing Facility II**

Four credits. Prerequisite: PHRX 5047, 5048, 5122.

Building upon the experience gained from PHRX 5122, the student will apply knowledge of pharmacotherapy of medical diseases and psychiatric disorders and communication skills to patients in a skilled care nursing facility. Emphasis is on optimization of medication-related outcomes in skilled care nursing facility patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5146. Professional Experience in Managed Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5118.

Building upon the experience gained from PHRX 5118, the student will apply pharmacy knowledge and communication skills to the practice of managed care pharmacy. Emphasis is on the development of strategies that optimize pharmacotherapy of major medical diseases, surgical procedures, and psychiatric disorders within the economic constraints of a managed care health care delivery system.

**5147. Professional Experience in International Pharmacy Practice**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in a variety of pharmacy practice settings outside the USA. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

**5148. Professional Experience in Nephrology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of renal disorders to the provision of pharmaceutical care in patients with compromised renal function. Emphasis is on optimization of medication-related outcomes in renal patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5149. Professional Experience in Critical Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5111.

Building upon the experience gained from PHRX 5111, the student will apply knowledge of pharmacotherapy of major medical disorders and of post-surgical drug therapy to the provision of pharmaceutical care to critical care patients in medical, surgical, and specialized intensive care units. Emphasis is on optimization of medication-related outcomes in seriously ill patients through medication assessment, multidisciplinary treatment planning, and efficacy and safety monitoring. Direct patient contact.

**5150. Professional Experience in Pain Management**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of services to patients and caregivers of patients requesting assistance in addressing both acute and chronic pain as comorbidity with various other diseases. Students will work in collaboration with other health professionals. Direct patient contact.

**5151. Professional Experience in Management/Drug Information**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of drug information services in a variety of settings. Students will learn to follow site policies and procedures with respect to providing information subsequent to inquiries from preceptor site stakeholders. Students will also experience management issues embedded in contemporary pharmacy practice.

**5152. Professional Experience in Medication Safety**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to practice principles and processes involved with improving safety in medication use systems. Students will prepare to take part in key health setting committee meetings related to safety.

**5153. Professional Experience in Academia**

Four credits. Prerequisite: PHRX 5047, 5048.

This rotation is designed to provide students who are interested in a career in academia the opportunity to develop their skills in teaching in various settings. Students will have extensive exposure to the development of learning modules, lecture and small group discussions. In addition, opportunity exists for an introduction to ACPE accreditation of Continuing Pharmacy Education and students may be involved in the planning and design of various continuing education activities as well as scholarship activities surrounding continuing education to develop a sense of the importance of continuing professional development.

**5154. Professional Experience in Organ Transplantation**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of the therapeutics of organ transplantation and communication skills to the provision of pharmaceutical care to transplant inpatients. Emphasis is on the optimization of medication-related outcomes in transplant patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5155. Professional Experience in International Pharmacy Practice II**

Four credits. Prerequisite: PHRX 5047, 5048, 5147.

Building upon the experience gained from PHRX 5147, the student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in a variety of pharmacy practice settings outside the USA. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

**5156. Professional Experience in Nephrology II**

Four credits. Prerequisite: PHRX 5047, 5048, 5148.

Building upon the experience gained from PHRX 5148, the student will apply knowledge of therapeutics of renal disorders to the provision of pharmaceutical care in patients with compromised renal function. Emphasis is on optimization of medication-related outcomes in renal patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5157. Professional Experience in Community Practice III**

Four credits. Prerequisite: PHRX 5047, 5048, 5100, 5110.

Building upon the experience gained from PHRX 5100 and 5110, the student will expand the application of drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on continued development of patient assessment and patient education skills in optimizing response to medications.

**5158. Professional Experience in Perioperative Surgery**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy to pre-surgical and post-surgical use of drugs. Emphasis is on the optimization of medication-related preparation and outcomes in the surgical patient, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5159. Professional Experience in Burn Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics to the provision of pharmaceutical care in patients with burns. Emphasis is on optimization of medication-related outcomes in burn patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5160. Professional Experience in Academia II**

Four credits. Prerequisite: PHRX 5047, 5048, 5153.

Building on PHRX 5153, this rotation is designed to provide students who are interested in a career in academia the opportunity to develop their skills in teaching in various settings. Students will have extensive exposure to the development of learning modules, lecture and small group discussions. In addition, opportunity exists for an introduction to ACPE accreditation of Continuing Pharmacy Education and students may be involved in the planning and design of various continuing education activities as well as scholarship activities surrounding continuing education to develop a sense of the importance of continuing professional development

**5161. Professional Experience in Pharmacy Informatics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the integration of information systems into health care settings. Students will be exposed to a variety of component parts of medication distribution automation, electronic documentation as well as data gathering and reporting tools embedded in pharmacy practice. Students will also experience data management issues embedded in contemporary pharmacy practice.

**5162. Professional Experience in Hospital Administration**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the development of management skills in health system settings. Students will gain an understanding of the challenges of management responsibilities and strategies used to overcome them as well as the role of leadership.

**5163. Professional Experience in Neurology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of neurological disorders to the provision of pharmaceutical care in cardiology patients. Emphasis is on optimization of medication-related outcomes in patients with neurological disorders through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5164. Professional Experience in Infectious Disease II**

Four credits. Prerequisite: PHRX 5047, 5048, 5105.

Building on PHRX 5105, the student will apply knowledge of pharmacotherapy of infectious disease to the provision of pharmaceutical care to infectious disease inpatients. Emphasis is on optimization of medication-related outcomes in patients with serious infectious diseases through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5165. Professional Experience in Pharmacy Management**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the development of management skills in pharmacy settings. Students will gain an understanding of the challenges of management responsibilities and strategies used to overcome them as well as the role of leadership.

**5166. Professional Experience in Outcomes Research**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy, drug literature evaluation, pharmacoeconomic and statistical analysis knowledge and skills to complete clinically relevant outcomes research projects. Students will work as a member of an interdisciplinary team to complete prospective clinical research, systematic reviews and meta-analyses, observational and economic modeling studies. Finally, students will also participate in didactic sessions designed to increase their knowledge of outcomes research.

**5167. Urban Service Track**

Four credits. Prerequisite: Acceptance into the UST Program.

The Urban Service Track (UST) scholar program is an innovative educational program that provides health professions students with the opportunity to gain valuable skills and experiences in the care of urban, underserved patients, while working and learning together. UST Scholars collaborate in all activities as inter-professional teams composed of students from the UConn Schools of Pharmacy, Dental Medicine, Medicine and Nursing and the Connecticut Area Health Education Center (AHEC) program. UST Pharmacy Scholars focus on teaching both patients and other health profession students regarding their role on the health care team. Direct patient contact.

**5168. Professional Experience in Pediatric Infectious Disease**

Four credits. Prerequisite: PHRX 5047, 5048. *Hritcko*

The student will apply knowledge of infectious diseases to the provision of pharmaceutical care in pediatric patients (inpatient and outpatient). Students will participate in antimicrobial stewardship activities as well as participate as a member of the pediatric infectious disease team. Emphasis is on medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring. Direct patient contact.

**5169. Professional Experience in Pharmacy Leadership**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will improve leadership skills through an understanding of leadership theory, interactions with leaders in pharmacy and other fields, and participation in a "real world" project. This course provides an opportunity to improve teaching and mentoring skills while working collaboratively with pharmacists and health professionals.

**5195. Special Topics in Clinical Rotations**

Credits by arrangement. This course may be repeated for credit.

**5199. Undergraduate Experiential Research**

Four credits. Prerequisite: PHRX 5047, 5048; open only with the consent of instructor and Associate Dean.

This rotation is designed primarily for qualified students who wish to extend their knowledge in various fields represented in the School of Pharmacy. A written summary of work performed is required at the end of this rotation in addition to all other requirements.