PHARMACY (PHAR)

PHAR 105. Introduction to Pharmacy. (1 Credit)
Offered at: OL

PHAR 301. Pharmacy Biochemistry. (4 Credits)
Phar 301 is a 4 credit, one-semester course covering how atoms and molecules interact to produce life processes. Topics include, but are not limited to, biological synthesis of macromolecules, the chemistry of biological molecules, protein structure and function, enzyme mechanisms and kinetics, carbohydrate and lipid metabolic processes, nucleic acid chemistry and protein synthesis, and common molecular processes such as replication, transcription and translation. A unit on cell biology covers major intracellular processes and molecular classes, biosignaling processes, and genetic and biochemical regulation. Pharmacy Biochemistry is limited to CUW School of Pharmacy students. Prerequisite: None

Offered at: CUW

PHAR 312. Pharmacy Anat and Phys. (5 Credits)
This course will examine the structure and function of the human body. Exploration will begin at the level of individual molecules and progress through cells, tissues, organs, and organ systems, culminating in a view of the body as a whole. Along with PHAR 310 Pharmacy Biochemistry and PHAR 314 Pharmacy Immunology, Molecular Biology, and Microbiology, this course will provide the core knowledge in the biomedical sciences upon which future studies in the pharmaceutical sciences will be built. Prerequisite: None

PHAR 314. Pharmacy Microbiology. (4 Credits)
This course introduces the pharmacy student to the fundamentals of microbiology, immunology and molecular biology. This course is designed to provide information and conceptual approaches needed for understanding the characteristics and activities of bacteria, viruses, fungi, and parasites, as well as the immunological responses of the host, and the molecular mechanisms of transfer of genetic information and drug resistance within pathogenic microbes. The primary goal is to assist each student to (i) acquire and integrate the knowledge necessary to make scientifically based judgments concerning immune and microbial diseases, and (ii) apply new findings gained by personal observation or by informed reading of the current literature. Prerequisite: None

PHAR 320. Pharmaceutics I. (2 Credits)
Theory of physiochemical principles, thermodynamics and kinetics applicable to pharmaceutical systems, states of matter, with emphasis on aqueous solution chemistry, including solubility, acid-base systems, buffer systems, complexation and protein binding, along with principles of diffusion, drug release and dissolution processes, bioavailability, and pharmaceutical kinetics are included. Prerequisite: None

PHAR 322. Pharmaceutics II. (4 Credits)
Building upon the content of Pharmaceutics I, this course expands the knowledge base within the domain of drug delivery. Pharmaceutical dosage forms are introduced, along with their rationale for delivering optimal therapeutic benefit. A survey of the various sites available for drug administration, anatomic, physiologic and pathophysiologic considerations of those sites, and drug product requirements are covered. Oral, pulmonary, ocular, otic, buccal, sublingual, inserted, dermal, specialty, innovative dosage forms and device/drug product combinations, etc., are included. Students taking this course will develop competency in the principles upon which dosage forms act on or within the human body, thus fulfilling the University’s core curriculum goal of scientific literacy. (Includes patient care skills teaching laboratory.) Prerequisite: None

PHAR 330. Pharmacology I. (3 Credits)
This course introduces the pharmacy student to the fundamentals of pharmacology and toxicology with more comprehensive overviews of autonomic and CNS pharmacology. The theme of xenobiotics is used to keep an initial focus on the broad spectrum of pharmacologic and toxicologic properties of external compounds (drugs and toxins) that affect the nervous system. This first course of three Pharmacology/Medicinal Chemistry courses will emphasize target organ effects, dose/response, and disposition so that student can fully understand basic pharmacologic principles of drug and xenobiotic handling, neuropsychopharmacology and drugs which act on the Central nervous System, and neurotoxicology related topics including: substance abuse and treatment; and poison control support of emergency medicine, public health and preventive medicine frameworks. Prerequisite: None

PHAR 340. Pharmacy&Healthcare System. (3 Credits)
The course will cover the major concepts related to the structure and functioning of the U.S. health care system. Emphasis will be placed on analyzing issues associated with health care, personnel, and the organization of health care and its delivery, how it is financed and regulated. The course will also examine the provision of drugs and pharmacy services in the context of the health care enterprise. Prerequisite: None

PHAR 350. Pharmacotherapy I:Self Care. (2 Credits)
Pharmacotherapy I: Self-Care is the first of five courses in which you will learn about pharmacotherapy, which is the treatment of disease through the use of drugs. This course will discuss the pathophysiology, epidemiology, clinical presentation, and treatment of common, self-limiting conditions. This course also covers triage and referral skills and wellness interventions. This course will give you the tools to help patients to select appropriate over-the-counter medications and dietary supplements. Prerequisite: None
PHAR 352. Pharmacy Calculations. (1 Credit)
Accurately performing pharmaceutical calculations is a critical component in providing patient care in every pharmacy practice environment. Consequently, pharmaceutical calculations are a vital part of any pharmacy curriculum. Although most pharmaceutical calculations are not rocket science, it is a topic that requires attention because it requires virtually flawless accuracy. Before students are able to become optimally proficient at performing pharmaceutical calculations, they must understand approaches to pharmaceutical calculations that help minimize error and maximize accuracy. Their pre-course perceptions of pharmaceutical calculations must also be openly addressed so that these perceptions do not hinder the students focus on pharmaceutical calculations.
Prerequisite: None

PHAR 370. Applied Patient Care I. (2 Credits)
Applied Patient Care I is the first of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build students’ foundational skills in drug information retrieval, patient interviewing, patient education, and critical thinking in the context of pharmacy's multiple disciplines. (Includes patient care skills teaching laboratory.)
Prerequisite: None

Offered at: CUW

PHAR 372. Applied Patient Care II. (2 Credits)
Applied Patient Care II is the second of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build students’ foundational skills in drug information retrieval, patient assessment, care plan development, patient education, leadership, medication safety, patient use of medications and medical goods and critical thinking in the context of pharmacy’s multiple disciplines. (Includes patient care skills teaching laboratory.)
Prerequisite: None

PHAR 380. Intro Pharmacy Prac Exp I. (3 Credits)
During the first semester of Introductory Pharmacy Practice Experience (IPPE-1), students are exposed to the roles and responsibilities of the professionally oriented pharmacist and the importance of effective communication between pharmacists, patients, and other healthcare providers. Off campus experiences will include a minimum of 40 hours each in a community and hospital setting. Legal, ethical, and practice issues in pharmacy are discussed during classroom and experiential activities. (Includes 2 weeks of pharmacy practice site-based learning.)
Prerequisite: None

Offered at: CUW

PHAR 382. Intro Pharmacy Prac Exp II. (3 Credits)
During the second semester of Introductory Pharmacy Practice Experience (IPPE-2), students are exposed to the roles and responsibilities of the professionally oriented pharmacist and the importance of effective communication between pharmacists, patients, and other healthcare providers. Off campus experiences will include a minimum of 40 hours each in a community and hospital setting. Legal, ethical, and practice issues in pharmacy are discussed during classroom and experiential activities. (Includes 2 weeks of pharmacy practice site-based learning.)
Prerequisite: None

PHAR 424. Apl Pharmacokin/Therap Drg Monit. (3 Credits)
This course expands on previous teachings regarding absorption, distribution, metabolism and excretion (ADME/ADE) a.k.a. absorption, distribution, elimination (ADE). Students will need to draw on their previous coursework to understand fundamental concepts in ADME/ADE and readily apply this knowledge. Further examination of pharmacokinetic (PK) models will assist students’ conceptual understanding of ADME/ADE. Using this conceptual framework, students will simultaneously develop and hone skills in PK dosing and therapeutic drug monitoring. Students should be prepared to not only acquire new knowledge but also readily apply their new and existing PK knowledge to optimize doses and solve complex PK dosing problems. To accomplish these tasks the course will move rapidly and students must contact instructors immediately with problems in keeping pace.
Prerequisite: None

Offered at: CUW

PHAR 426. Advan Pharmaceutical Prep. (2 Credits)
This course is a continuation of the nonsterile and sterile product preparation skill development from the Pharmaceutics II course and laboratory. Topics emphasized will include aseptic technique, incompatibilities, stability, cytotoxic preparations, and continued proficiency in common non-sterile preparations. (Includes patient care skills teaching laboratory.)
Prerequisite: None

Offered at: CUW

PHAR 432. Pharmacology/Medicinal Chem II. (4 Credits)
This course continues to expand the pharmacy student’s knowledge on the fundamentals of pharmacology and toxicology, re-emphasizing critical objectives with regard to drug Mechanism of Action, Absorption, Distribution, Metabolism, and Elimination. Extensive review of drug structure, receptor binding, and Medicinal Chemistry will be a focal point for the course. The Medicinal Chemistry sections of this course will emphasize drug structure as a determinant of receptor binding, receptor activation, and receptor antagonism. The logic of drug design will be presented, with a focus on how variations to chemical structure can lead to changes in drug efficacy, as well as altered toxicity and bioavailability.
Prerequisite: None

Offered at: CUW

PHAR 434. Pharm & Medicinal ChemistryIII. (4 Credits)
This course continues to expand the pharmacy student's knowledge on the fundamentals of pharmacology and toxicology, re-emphasizing critical objectives with regard to drug Mechanism of Action, Absorption, Distribution, Metabolism, and Elimination. Extensive review of drug structure, receptor binding, and Medicinal Chemistry will be a focal point for the course. The Medicinal Chemistry sections of this course will emphasize drug structure as a determinant of receptor binding, receptor activation, and receptor antagonism. The students will also continue their drug-drug interaction project from the previous semester.
Prerequisite: None
PHAR 442. Social and Behavioral Pharmacy. (2 Credits)
This course is a survey of topics in the social and behavioral sciences as applied to pharmacy. The goal of the course is to give students a better understanding of how social, psychological, and socio-cultural factors explain and relate to disease processes, patients and pharmacists’ orientation to the health care system, and patient-pharmacist encounters. Topics covered include (but are not limited to) the relationship between the mind and the body, the nature and experience of chronic illness, mental illness, substance use, patient counseling and communication, pharmacist-physician interaction, medication adherence, and medication errors.
Prerequisite: None

PHAR 450. Pharmacotherapy II. (3 Credits)
This required course is the second of five courses in which students learn about pharmacotherapy. Phar 450 is designed to teach students the epidemiology, etiology, pathophysiology, clinical presentation, treatment options and evaluation of therapeutic outcomes of many renal, fluid and electrolyte, acid-base, and cardiovascular disorders. The course aims to develop pharmacists with the clinical knowledge, skills, and judgment to make clinical decisions based on sound therapeutic principles of drug and disease state management, treatment guidelines, and relevant individual patient factors. Ultimately the goal of this course is to empower students to be able to provide evidence based, safe, and appropriate medication use for patients with renal, fluid and electrolyte, acid-base, and cardiovascular disorders.
Prerequisite: None

Offered at: CUW

PHAR 452. Pharmacotherapy III. (4 Credits)
Pharmacotherapy III is the third of five courses in which students will learn about pharmacotherapy. Phar 450 is designed to teach students the epidemiology, etiology, pathophysiology, clinical presentation, treatment options and evaluation of therapeutic outcomes of many renal, fluid and electrolyte, acid-base, and cardiovascular disorders. The course focuses on the core content areas of infectious diseases, endocrine disorders, and inflammatory disorders. Students will develop the skills needed to make evidence-based, patient-specific medication use recommendations relative to the core content areas.
Prerequisite: None

PHAR 460. Medical Literature Eval I. (2 Credits)
is the first in a 2-course series focusing on the use of medical literature for patient care. This course will focus on the critical evaluation of primary literature, including principles of biomedical statistics, research design, literature evaluation, and application to patient care. Study designs taught and analyzed include case-control, cohort, randomized controlled trials, and survival analysis. Journal clubs and other active learning strategies allow students to apply evaluation concepts throughout the semester. 2 credits.
Prerequisite: None

Offered at: CUW

PHAR 462. Med Literature Evaluation II. (2 Credits)
is the second in a 2-course series focusing on the use of medical literature for patient care. This course will build upon primary literature evaluation skills gained in Medication Literature Evaluation I and the introduction to tertiary references, secondary databases, and evidence-based guidelines from previous courses. The course focuses on application of knowledge and skills in critiquing articles, leading journal clubs, and answering case-based drug information questions. Study designs from the previous course in the series are enhanced, and meta-analyses and non-inferiority studies are added. Principles and practice in evidence-based drug use decision making, medication shortages, and medication errors are also taught and applied. 2 credits.
Prerequisite: PHAR 460.

PHAR 470. Applied Patient Care III. (2 Credits)
Phar 470 Applied Patient Care III is the third of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build foundational skills in drug information retrieval, patient interviewing, patient education, and critical thinking in the context of multiple disciplines of pharmacy. The first two courses in this series focused on the specific direct patient care skills of gathering a medication list, providing patient education, conducting a comprehensive interview of a new patient, and providing a verbal care plan to a patient. Phar 470 continues to develop these skills by providing more opportunities to practice what has been learned using simulated patient and provider interactions. Students will learn new skills including follow-up assessments, physical assessment, and clinical documentation. The course will also continue to develop skills in drug information and health literacy while integrating with the didactic curriculum and the IPPE series. (Includes patient care skills teaching laboratory.)
Prerequisite: None

Offered at: CUW

PHAR 472. Applied Patient Care IV. (2 Credits)
Phar 472 Applied Patient Care IV is the fourth of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build foundational skills in drug information retrieval, patient interviewing, patient education, and critical thinking in the context of multiple disciplines of pharmacy. The first three courses in this series focused on the specific direct patient care skills of gathering a medication list, providing patient education, conducting a comprehensive interview of a new patient, providing a verbal care plan to a patient, completing a follow-up assessment, and documentation of patient encounters. These skills were taught and developed using material learned in the Pharmacotherapy series and self-care. Phar 472 continues to develop these skills by providing more opportunities to practice what has been learned using simulated patient and provider interactions. Phar 472 will also build upon these with more complicated patient cases and pharmacotherapy concepts. Students will learn new skills in provider communication and will have an opportunity to further develop documentation skills learned in Phar 470. The course will also continue to develop skills in drug information and health literacy while integrating with the didactic curriculum and the IPPE series. (Includes patient care skills teaching laboratory.)
Prerequisite: None
PHAR 474. Servant Leadership. (2 Credits)
The servant leadership philosophy/perspective focuses the leader on the needs of others for their benefit and connects nicely with the ethos of our profession and the mission of Concordia University Wisconsin. Though servant leadership outcomes are covered longitudinally through our curriculum, this course will provide a central point of focus for introducing, advancing and evaluating concepts related to the servant leadership outcomes. The course will focus on leadership development and its relation to meeting the needs of others and advancing the profession of pharmacy. It is believed that the preceding learning goals cannot be accomplished via passive learning through an experience that is primarily restricted to a classroom. As a result, the course has been designed to engage students in self-discovery and reflection through a combination of structured and unstructured experiences taking place in the lecture hall, 'lab setting' and our community. This class will consist of three distinct, yet interrelated modules. Introduction to Servant Leadership in Pharmacy, Legislative Advocacy, Leading Change. (Includes patient care skills teaching laboratory.)
Prerequisite: None

Offered at: CUW

PHAR 480. IPPE - 3. (2 Credits)
During the third semester of Introductory Pharmacy Practice Experience (IPPE-3), students continue to explore and experience the roles and responsibilities of the professionally oriented pharmacist and the importance of effective communication between pharmacists, patients, and other healthcare providers. Off campus experiences will include 40 hours each in a community and hospital setting. Legal, ethical and practice issues in pharmacy are discussed during classroom and experiential activities. (Includes 2 weeks of pharmacy practice site-based learning.)
Prerequisite: None

PHAR 482. Intro Pharm Pract Exp:IPPE-4. (2 Credits)
During the fourth semester of Introductory Pharmacy Practice Experience (IPPE-4), students continue to explore and experience the roles and responsibilities of the professionally oriented pharmacist and the importance of effective communication between pharmacists, patients, and other healthcare providers. Off campus experiences will include 40 hours each in a community and hospital setting. Legal, ethical and practice issues in pharmacy, including professional development, are discussed during classroom and experiential activities. (Includes 2 weeks of pharmacy practice site-based learning.)
Prerequisite: None

Offered at: CUW

PHAR 511. Public Health Microbiology. (2 Credits)
Public Health Microbiology describes the methods that industrialized countries use to ensure the safety of their populations from infectious disease. Topics covered include water and wastewater treatment, food microbiology, vaccines, sexually transmitted diseases, biostatistics, and epidemiology.
Prerequisite: None

PHAR 513. Community Compounding Practice. (2 Credits)
This course is designed to expose the student to dosage forms not seen in their previous required pharmaceutics compounding labs and to challenge students creative/analytical thinking through product creation and formulation development. An emphasis will be placed on quality assurance/quality control as well as product analysis. We will cover topics and create products unique to compounding pharmacy such as pediatric compounding, veterinary compounding, pain control, BHRT, cosmeceuticals, sterile compounding from non-sterile products and more. Each student will have the opportunity to create a lab and compound designed specifically to their interests. The goal of this course is to expand on the students’ current knowledge of compounding pharmacy and to discover and create innovative ways to treat patients using compounding pharmacy skills and techniques.
Prerequisite: None
Offered at: CUW

PHAR 515. Veterinary Pharmacy Practice. (1 Credit)

PHAR 517. Globl Phar Exp - Spain. (2 Credits)

PHAR 519. Medication Use in Public and Population Health. (2 Credits)
is an elective interprofessional course that is open to any CUW graduate or professional student. This course will explore basic principles surrounding prevention, management, and consequences of intentional and unintentional medication exposure within areas of public and population health. 2 credits.
Prerequisite: None
Offered at: OL

PHAR 521. Research Meth in Pharm Science. (2 Credits)

PHAR 523. Pharmaceutical Biotechnology. (2 Credits)
This course will introduce basic techniques of modern biotechnology related to biological processes with emphasis on those salient to the realm of drug discovery and drug therapy. Applications to monoclonal antibody products, interferons, interleukins, vaccines, hematopoietic growth factors, and growth factors are included, along with gene knockout technology, in vivo fluorescent labeling, flow cytometry, and stem cells. Future prospects for utilization in organ replacement, gene therapy, and in utero cell repair are discussed.
Prerequisite: None
Offered at: CUW

PHAR 525. Faith and Health Professions. (2 Credits)
This course will have several modules that will focus on the intersection of healthcare and faith. Initially we will explore the history of healthcare and religion. We will then discuss medical literature in a scientific review of religion, spirituality and health. In addition we will examine other faiths and how each one interacts with the principles of modern medicine. As pharmacists we are called to a very special vocation. We will explore the meaning of vocation. We will also discuss the intersection of the Christian faith and healthcare through of variety of means including case studies, spiritual histories and patient encounters.
Prerequisite: None
Offered at: CUW

PHAR 527. Medical Improv for Pharm Stu. (1 Credit)
Offered at: CUW
PHAR 529. Pursuing & Succeed in Phar Res. (1 Credit)

PHAR 531. Clinical Toxicology. (2 Credits)
This course will focus on the clinical management of the ‘poisoned’ patient. Students will be exposed to the clinical presentation and treatment of patients experiencing toxicity from medications and biologicals. This course will review and reinforce the student’s knowledge of the fundamentals of pharmacology and toxicology. The course will re-emphasizing critical objectives with regard to mechanism of action, absorption, distribution, metabolism and elimination in addition to chemical structure. Drug addiction pathophysiology and treatment will be presented.
Prerequisite: None

Offered at: CUW

PHAR 535. Study Medicinal Plants-Amazon. (3 Credits)

PHAR 537. Medicinal Natural Products. (2 Credits)
This course is designed to familiarize the student with the identification, application, and evaluation of pharmaceutical products originating from natural sources. This will combine principles of basic science with pharmaceutical applications. Topics include: biodiversity and chemotaxonomy; biosynthesis; secondary metabolite-based drug development; social, legal, and harmful aspects of herbs and supplements; ethnopharmacology and cultural/traditional use of natural products. This course will provide students practical knowledge of the origins of medicines, so that they may better appreciate the complex world around them. The end goal is to engage students to learn in depth about ways nature is utilized to treat disease. This helps students to become more knowledgeable pharmacists and global citizens.
Prerequisite: None

Offered at: CUW

PHAR 539. Pharmacogenomics. (2 Credits)
Driven by advances in genomics technology and the resultant increased capacity to understand an individual’s genetic make-up, the emerging field of pharmacogenomics is increasingly informing clinical therapeutics and future drug design. This course is designed to provide students with an improved understanding of the complexities in identifying clinically significant genetic variation to predict the right choice and dose of medications for an individualized approach to medicine. Toward this end, the course will examine genetic principles and genomic technologies facilitating pharmacogenetic advances. Students will advance their knowledge of specific genetic principles inherent to non-disease states, disease states, ethnicity, and other factors known to impact drug response and individual patient outcomes. As the course advances, students will be guided to apply this knowledge to pharmacy practice through readings from the current literature, design of practice plans, and other relevant activities that will lead to an advanced understanding of how genetic variation influences pharmacologic principles, e.g. dose-response relationships and metabolism, and diseases including cardiovascular, CNS, hematologic, and immune systems as well as cancer. Consideration of the limitations of pharmacogenomics and ethical issues will also provide a complete perspective of the current and future impact of this important field.
Prerequisite: None

Offered at: CUW

PHAR 540. Pharmacoecon & Epidemiology. (2 Credits)
The course will provide the student with epidemiologic knowledge, tools, and techniques in examining populations (epi) and integrating financial data (econ) in informing practice planning and patient care decisions. An understanding of the health conditions of populations, the science of epidemiology, is essential to identifying and serving the targeted underserved and rural patient groups.
Prerequisite: None

PHAR 543. Managed Care Pharmacy Seminar. (1 Credit)
Offered at: OL

PHAR 544. Patient Care Ethics. (3 Credits)
The primary focus of this course is to explore the tension between law and ethics and their relationship to the practice of pharmacy. We will spend our time evaluating two broad questions: It’s ethical, but is it legal? It’s legal, but is it ethical? Pharmacy Law is composed of federal and state laws, rules, and regulations. Some of these laws are specific to the profession, while others relate indirectly to pharmacy, or they are general laws that apply to the entire population. The pharmacist is equally responsible for compliance with all of these laws, rules, and regulations, as well as policies governing pharmacy practice. In addition, the pharmacist is responsible for upholding certain standards of both personal and professional ethical conduct. These standards are successfully upheld through critical reflection. Ethics is reflective and critical: it does not simply attempt to codify our beliefs and opinions concerning moral issues and questions.
Prerequisite: None

Offered at: CUW

PHAR 545. Sustainability & Social Entrpr. (2 Credits)

PHAR 546. Pharm Management & Leadership. (3 Credits)
The course explores a series of management principles and techniques focusing on the anticipated responsibilities of the future pharmacist. Topics range from accounting and project management to strategy, human resources management, and marketing.
Prerequisite: None

PHAR 547. Pharmacy and the Underserved. (2 Credits)
This course is meant to provide additional opportunities for pharmacy students to develop skills and knowledge in providing pharmaceutical care to underserved patients. Healthcare professionals who have a limited understanding of caring for patients facing economic, cultural, geographic or linguistic barriers may carry negative attitudes and stereotypes toward those vulnerable populations. It is vital to teach students how to interact with diverse patients effectively, as well as appreciate the social, interpersonal, and individual differences that can influence how patients use medications to treat acute and chronic illnesses.
Prerequisite: None

PHAR 548. Pharmacy Law. (2 Credits)
This course covers federal and state statues, rules, and regulations that affect pharmacy practice and selected aspects of general law. Interpretation of those laws affecting the practice of community and institutional pharmacy is emphasized.
Prerequisite: None

Offered at: CUW
PHAR 549. Big Pharma: Markets & Culture. (2 Credits)
The multi-national pharmaceutical industry grew exponentially in the 1990s, producing blockbuster drugs, new (global) markets, and some would argue, new “disorders”. This course will explore the roots and tactics of this growth and trace pharmaceutical sales and marketing practices into the current era. Students will gain a deep understanding of how the industry markets products to prescribers, pharmacists, and medical consumers, from the activities of drug reps to direct to consumer advertising. A persistent theme of the course will be the cultural impact of modern pharmaceuticals on society and personhood.
Prerequisite: None
Offered at: CUW

PHAR 550. Pharmacotherapy IV. (4 Credits)
This required course is the fourth in a five course in which you learn about pharmacotherapy (the treatment of disease through the use of medications). Phar 550 is designed to teach students the pathophysiology, epidemiology, and treatment of certain oncologic, pulmonary, psychiatric, neurologic and pain disorders.
Prerequisite: None
Offered at: CUW

PHAR 551. Critical Care Pharm Practice. (1 Credit)
(LECTURE ONLY) This course provides an introduction to concepts and topics related to the care of a critically ill patient. Weekly lecture topics include the pathophysiology and management of selected diseases affecting major organ systems and requiring intensive care therapy. (This course is lecture based and does not include the journal club in the second hour.)
Prerequisite: None
Offered at: CUW

PHAR 552. Pharmacotherapy V. (4 Credits)
Pharmacotherapy V is the last of five courses in which you learn about pharmacotherapy regarding men’s and women’s health, nutrition, hepatology, solid organ transplant, and gastrointestinal diseases. Upon completion of this course, students should achieve the learning outcomes and course objectives outlined below. Develop pharmacists with the clinical knowledge, skills, and judgment to provide patient care in cooperation with other health care providers. Clinical decisions are based on sound therapeutic principles of drug and disease state management, treatment guidelines, and relevant individual patient factors, with the goal of providing evidence based, safe, and appropriate medication use for patients.
Prerequisite: None
Offered at: CUW

PHAR 553. Infectious Diseases Pharm Semi. (1 Credit)
This once-weekly seminar series serves to introduce timely Infectious Diseases (ID) Pharmacotherapy topics to the student, and it will facilitate a more detailed discussion of select ID conditions. The role of the pharmacist in ID state management will be emphasized using an interactive Grand Rounds type format. Students will be asked to prepare in advance and will be expected come to seminar with analytical questions for the speaker. In addition to presentations by CUW SOP faculty members, local expert pharmacists will present in their areas of expertise. Students will be assessed based upon participation and targeted assignments that correlate with select seminar presentations. Students will also complete a service project as part of this elective course.
Prerequisite: None
Offered at: CUW

PHAR 555. Solid Organ Transplant Ph Semi. (1 Credit)

PHAR 557. Diabetes Experience. (1 Credit)
This course is designed to enhance and expand student’s knowledge base, empathy, and ability to effectively work with people with diabetes through hands on learning and personal experience with the cornerstones of Diabetes Management. The class approach will have each student participate in the management of diabetes as a patient. Student activities will include: attending education classes on the basics of diabetes care, self-recording various aspects of their daily lifestyle including food and exercise log, daily intake of ‘placebo’ medications, blood glucose monitoring, and injection of placebo insulin (injections are 2 weeks of the class with the option of wearing a placebo insulin pump). Students will also get a firsthand experience of motivational interview and goal setting to make changes as if they were the person with diabetes. This course matches the CUW Mission and SOP curricular goal to develop student pharmacists in mind and spirit to provide value-based patient centered care for service to the world.
Prerequisite: None

PHAR 559. Ambulatory Care Pharm Pract. (2 Credits)
Practice Ambulatory care is a growing aspect of pharmacy practice. Pharmacy graduates are given the clinical knowledge to manage chronic conditions and to assess patients with complex medication regimens through skills gained in clinical courses. This course will help students to further develop their clinical problem-solving skills and introduce the practice management skills needed to develop and maintain an ambulatory care practice.
Prerequisite: None
Offered at: CUW

PHAR 561. Pharmacy Practice Research. (2 Credits)
Research and practice-based scholarship is the process of methodically gathering, analyzing, and disseminating information for the purpose of making evidence-based decisions. It includes an internal or external peer review process to validate the methods, analysis, and value of the information for others. As pharmacists in practice or education, the scholarly process is often part of our expectations. This expectation could be within an organization as part of a quality assurance process or be designed for dissemination to the broader profession. In this course, students will explore the types of practice-based and education-based research as well as the venues for their dissemination. Methods for designing, conducting, and disseminating practice-based and educational scholarship will be taught. The process of developing a research question and plan will also be covered. 2 credits.
Prerequisite: None
Offered at: CUW
PHAR 563. Journal Club. (2 Credits)
Medical literature evaluation in clinical settings and practitioner-driven journal clubs will be part of many APPE rotations and practice expectations as a pharmacist. This elective course is designed to give students the opportunity to further develop their medical literature evaluation skills in a journal club setting. Advanced beyond evaluation of literature in Medical Literature Evaluation I and II, Medical Literature Journal Club puts students in an independent role of lead presenter of journal club articles with their peer P3 students. Also beyond Medical Literature I and II, students serve a role as journal club facilitator for P2 students as part of the P2 students’ introductory journal club experiences in Medical Literature Evaluation II. The course will also develop students’ skills identifying which articles are most germane to their upcoming practice and warrant evaluation, realizing that the volume of literature in practice exceeds that which can be read and necessitates prioritization. Finally, the course introduces students to grand rounds and other in-service presentations and gives them the chance to retrieve, analyze, and apply the literature during the development and delivery of a grand rounds presentation. 2 credits.
Prerequisites: PHAR 460 and PHAR 462.

PHAR 565. Oncology Practice Seminar. (1 Credit)
Advanced Oncology Seminar is a seminar-based course that will provide an overview of the unique aspects of oncology pharmacy practice. Students will also gain experience in providing oncology care through completion of a longitudinal educational project. Students will learn about the complex issues facing patients with cancer and gain insight into providing care as an oncology pharmacy specialist.
Prerequisite: None

PHAR 567. Specialty Pharmacy. (2 Credits)

PHAR 570. Applied Patient Care V. (2 Credits)
Phar 570 Applied Patient Care V (2 credit hours) is the fifth of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build students’ foundational skills in drug information retrieval, patient interviewing, patient education, and critical thinking in the context of pharmacy’s multiple disciplines. The first four courses in this series focused on the specific direct patient care skills of gathering a medication list, providing patient education, conducting a comprehensive interview of a new patient, providing a verbal care plan to a patient, patient followup, clinical documentation, and provider communication with much of the therapeutic content coming from Pharmacotherapy I-IV. Phar 572 continues to build on these skills while incorporating skills from the concurrent Pharmacotherapy V course. It will also continue to develop students’ skills in drug information, cultural competence, and health literacy while integrating with the didactic curriculum. In addition, students will have the opportunity to continue to build skills in leading change within pharmacy and becoming servant leaders. (Includes patient care skills teaching laboratory.)
Prerequisite: None

PHAR 571. Geriatric Pharmacy. (2 Credits)
This course builds on concepts and topics from required coursework related to the care of the elderly patient. Expert guest lecturers, a broad variety of topics, and active learning techniques such as small group discussion, case evaluations, and simulation will be utilized to enhance the learning experience. The course will address general principles of aging and geriatric assessment skills, pharmacotherapy of selected disease states and syndromes common in the senior population, as well as other pertinent issues related to geriatric care. Additionally, students will complete a project in which course content and skills will be applied to patients in the community.
Prerequisite: None

PHAR 572. Applied Patient Care VI. (2 Credits)
Phar 572 Applied Patient Care VI is the last of six integrated patient care skill development courses in the School of Pharmacy curriculum. It is a patient-centered course that uses simulated patient scenarios and case studies to build students’ foundational skills in drug information retrieval, patient interviewing, patient education, and critical thinking in the context of pharmacy’s multiple disciplines. The first five courses in this series focused on the specific direct patient care skills of gathering a medication list, providing patient education, conducting a comprehensive interview of a new patient, providing a verbal care plan to a patient, patient followup, clinical documentation, and provider communication with much of the therapeutic content coming from Pharmacotherapy I-IV. Phar 572 continues to build on these skills while incorporating skills from the concurrent Pharmacotherapy V course. It will also continue to develop students’ skills in drug information, cultural competence, and health literacy while integrating with the didactic curriculum. In addition, students will have the opportunity to continue to build skills in leading change within pharmacy and becoming servant leaders. (Includes patient care skills teaching laboratory.)

PHAR 573. Adv Mental Health Pharmacother. (2 Credits)
This elective course serves to build upon mental health knowledge learned in Pharmacotherapy IV (Phar 550) and to develop an even broader knowledge base of psychiatric and neurologic disease states. Lecture time will be divided between didactic teaching and team based learning. Students will learn to apply psychopharmacologic and therapeutic management strategies to treat these disorders through the use of interactive patient cases and clinical scenarios. Other methods of teaching and learning (videos, literature evaluation, patient counseling, expert panels, etc.) may also be used to illustrate key points and present material.
Prerequisite: None

PHAR 575. Medical Spanish for Pharmacist. (2 Credits)
In Medical Spanish for Pharmacists, students continue to explore and experience the roles and responsibilities of the professionally oriented pharmacist and the importance of effective communication between pharmacists and patients. This course aims to develop students to be able to provide patient education, and obtain a medication list, in Spanish while also developing students’ skills in cultural competency. One off-campus experience, a cultural service learning activity, will include a 4 hour volunteering experience in the community. Students will be required to speak, listen, and write in Spanish. A significant portion of the lectures will be taught in Spanish.
Prerequisite: None

Offered at: CUW
PHAR 577. Women's Health Iss in Phar Pra. (2 Credits)
Women's Health Issues in Pharmacy Practice provides an overview of diseases and health issues affecting women across their life span through the female patient's perspective. Women's advocacy activities will include female-centered community service. Students will learn how to provide female patients individualized medication therapy to fit her unique medical needs while balancing psychosocial influences of her everyday life.
Prerequisite: None

PHAR 579. Advanced Cardiology Topics. (1 Credit)
Topics This course is designed to enhance and expand students knowledge base in cardiology topics. This course will build upon the knowledge base obtained in pharmacotherapy and medical literature evaluation courses. Student will utilize literature evaluation skills to prepare a formulary review of a pipeline drug, perform weekly journal club preparation, prepare an abstract for a potential research protocol, and write a drug information question. Weekly lectures will focus on unique cardiology conditions that are not covered in depth in the core curriculum. In addition, students will be learning the basics of electrocardiogram interpretation through weekly study.
Prerequisite: None

PHAR 581. IPPE - 5. (3 Credits)
During the elective semesters of the experiential education curriculum, students will continue to explore and experience the roles and responsibilities of a professional pharmacist. Students will participate in the practice of pharmacy with pharmacists, patients, and other healthcare providers and will apply knowledge obtained in the required curriculum. The course will consist of longitudinal off-campus rotation experiences in a variety of pharmacy practices, as well as on-campus discussions.
Prerequisite: None

Offered at: CUW

PHAR 583. IPPE-6. (3 Credits)
During the elective semesters of the experiential education curriculum, students will continue to explore and experience the roles and responsibilities of a professional pharmacist. Students will participate in the practice of pharmacy with pharmacists, patients, and other healthcare providers and will apply knowledge obtained in the required curriculum. The course will consist of longitudinal off-campus rotation experiences in a variety of pharmacy practices, as well as on-campus discussions.
Prerequisite: None

PHAR 591. Ped Pharmacology & Therapeutic. (2 Credits)
This course is intended to be an overview of the healthy, acutely ill, and chronic - complex pediatric patient. A focus of this course will be the preventative and supporting pharmaceutical therapies used in managing these types of patients. The approach taken will be by age group and discuss pharmaceutical management in both ambulatory and inpatient settings. Age groups covered will include fetal, preterm, term infant, toddlers, preschool, school age, and teenage.
Prerequisite: None

PHAR 593. Analyt Char of Drugs Oth Chems. (3 Credits)
This course provides brief lectures on the purification and spectral characterization of pharmacologically important molecules. The majority of the class is not taught in the classroom, but consists of lab work to be done using analytical instrumentation – especially NMR, but also IR, MS and HPLC. Weekly lab exercises are to be performed, and at the end of the semester the students provide a report that summarizes their experiments and results. Students will pursue a hands-on project of their choice: characterizing drug impurities during manufacturing, API or precursor integrity in various steps in the pharmaceutical supply chain, natural products from Lake Michigan or the Amazon rain forest (Peru), and pollutants or poisons identified by regional agencies (poison control; EPA). Students will be encouraged to think of projects relevant to their interests (ex. comparing generic vs. name brand drugs; drugs at or past their expirations dates). Completion of the course makes students eligible for various paid summer internships.
Prerequisite: None

PHAR 595. Global Exp: Pharm Pract Guatem. (3 Credits)

PHAR 597. Crit Care Phar Pract - Journal Club. (1 Credit)
(LECTURE AND JOURNAL CLUB) This course provides an introduction to concepts and topics related to the care of a critically ill patient. Weekly lecture topics include the pathophysiology and management of selected diseases affecting major organ systems and requiring intensive care therapy. The critical care journal club focuses on the review of primary literature related to critical care topics covered in the lecture hour. (This course registration includes both the lecture and the journal club.)
Prerequisite: None

Offered at: CUW

PHAR 601. Special Topics. (1-4 Credits)

PHAR 602. Pharm Special Topics - Project. (1-4 Credits)
Also often referred to as independent study, a student and faculty pair submit a learning plan for self-directed, small group learning throughout the semester. Typical load is 45 hours of effort per credit. Requires consent instructor and Associate Dean for Academic Affairs. For more information, contact Dr. Mike Brown at michael.brown@cuw.edu
Prerequisite: None

Offered at: CUW

PHAR 680. Community Pharmacy APPE. (6 Credits)
During the required Community Pharmacy APPE, pharmacy students under the supervision of a Clinical Instructor will gain experience in community pharmacy practice including, but not limited to, dispensing procedures, pharmacy law, practice management, and OTC pharmacotherapy assessment. The student will perform medication list retrieval, patient education, clinical documentation, and other patient care skills as appropriate for their rotation site. The student will develop a philosophy of community pharmacy practice regarding the role of the pharmacist as a member of the health care team. (Full-time practice site-based learning.)
Prerequisite: None

Offered at: CUW
PHAR 682. Acute Care Medicine APPE. (6 Credits)
The acute care medicine APPE rotation is a 6 week experiential rotation where the students learning will focus on applying didactic coursework and patient care skills to the care of acutely ill, hospitalized patients. Students will actively participate in the delivery of patient care by assuming their role in an interdisciplinary healthcare team. (Full-time practice site-based learning.)
Prerequisite: None
Offered at: CUW

PHAR 684. Hospital/Health Sys Phar APPE. (6 Credits)
During the required Hospital/Health System Pharmacy APPE, pharmacy students under the supervision of a Clinical Instructor will gain experience in a hospital's central pharmacy and distributive processes. Students will gain skill and experience in hospital pharmacy practice including, but not limited to, the medication use process, automation/computerization, sterile and nonsterile product preparation, quality assurance and medication safety, practice management, and interdisciplinary communication. The student will prepare and process medication orders, identify and resolve drug therapy problems, provide patient care, and participate in hospital pharmacy operations as appropriate for their rotation site. The student will develop a philosophy of hospital/health system pharmacy practice regarding the role of the pharmacist as a member of the health care team. (Full-time practice site-based learning.)
Prerequisite: None
Offered at: CUW

PHAR 686. Ambulatory Care APPE. (6 Credits)
The ambulatory care APPE rotation occurs in a variety of practice settings, including, but not limited to, community retail pharmacies, hospital outpatient pharmacies, clinics and physician offices. During this experience, students learning will focus on applying didactic coursework and patient care skills to the care of ambulatory patients. Students will be active participants on the interdisciplinary team and engage in activities involving the delivery of quality, comprehensive pharmaceutical care, including clinical care conferences, patient education and interviewing, drug therapy monitoring, physical assessments, and drug information questions. The student will actively participate in the health care decision-making process, especially as it pertains to drug therapy. (Full-time practice site-based learning.)
Prerequisite: None
Offered at: CUW

PHAR 688. Elective APPE. (6 Credits)
The CUWSOP experiential curriculum offers ample opportunities for students to customize and specialize their rotation experiences in the year of APPEs. Students may pick from a variety of elective opportunities, including advanced ambulatory care, management, drug information, government, academia, advanced internal medicine, intensive care, emergency medicine, poison center, industry, and international rotations just to name a few. (Full-time practice site-based learning.)
Prerequisite: None
Offered at: CUW

PHAR 699. Pharmacy Elective. (3 Credits)

PHAR 711. Teaching Pharm Students I. (2 Credits)
Offered at: CUW

PHAR 712. Teaching Pharmacy Students II. (2 Credits)
Offered at: CUW

PHAR 713. Teaching Pharm Students III. (2 Credits)