

(25) James L. Winkle College of Pharmacy

2008 - 2009

James L. Winkle College of Pharmacy 1

Pharmacy-Administrative Science

25PADM551

Medication Distribution System Analysis

The use of control theory in evaluating and designing medication distribution systems. Discussion including pharmacy automation, operations analysis, job redesign, and centralized vs. decentralized operations. BoK: NA. Credit Level: U, G. Credit Hrs: 3.00

25PADM571

Introduction to Pharmaceutical Economics & Policy

Introduction to the economic and policy analysis of the pharmaceutical industry. Focus will be on the suppliers of therapeutic agents and their motivation and performance. Potential applications of economic analyses in pharmacy and the health policy process. Demand and supply issues related to bringing products to markets, setting drug prices, and comparison of international trends will be included. BoK: NA. Credit Level: U, G. Credit Hrs: 3.00

25PADM500

Financial Realities of Pharmacy

Discussion of types of business enterprises, insurance needs, employee benefits, and taxes that are appropriate for pharmacists and pharmacies. Credit Level: G. Credit Hrs: 2.00

25PADM611

Application of Statistics for Pharmacists

Application of the basic principles of statistics to the practice of pharmacy. Statistical validity scientific integrity of literature and the design of methods for conducting drug related studies. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PADM621

Pharmacy Communications

Introduction into social, psychological and professional aspects of pharmacist communications. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PADM631

Pharmacy Jurisprudence

A study of Federal, state, and local laws and regulations governing the practice of pharmacy. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PADM650

Pharmacoeconomics-NTPD

The application of pharmacoeconomic principles in interpreting cost consequence studies of pharmaceutical and other therapeutic modalities. Sources, reliability and validity of operational measures of costs, clinical, economic and quality of life outcomes will be covered Perm of College. Credit Level: G. Credit Hrs: 3.00

25PADM672

Research in Pharmacoepidemiology and Drug Safety

Research applications for post-marketing drug safety surveillance. Focus will be on pharmacoepidemiologic research, therapeutic risk management, and pharmacoepidemiology contribution to pharmacy practices. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PADM712

Pharmacy Management I

A study of the socioeconomic factors involved with the practice of contemporary pharmacy Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PADM722

Pharmacy Management II

A study of the principles of operations, financial and personnel management as applied to contemporary pharmacy practice Prereq: 25PADM712. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Administrative Science

25PADM774

Evaluation of Administrative Pharmacy Research

An evaluative review of published research in the managerial and legal aspects of pharmacy practice. Credit Level: G. Credit Hrs: 3.00

25PADM812

Pharmacoeconomics

This course is an introduction to Outcomes Research focusing on the economic, clinical and humanistic dimensions. It covers cost/consequence analysis, decision analysis and quality of life measures in health care. Perm of College. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Biological Science

25PBIO502

Vitamins

An in-depth examination of the biochemical aspects of vitamins and how they contribute to the health and well-being of humans. BoK: NA. Credit Level: U, G. Credit Hrs: 3.00

25PBIO610

Pharmacology Basics

Provide an understanding of the basic concepts and applications of the science of pharmacology, giving a solid base upon which to build a working knowledge of how drugs can influence target cellular activity in a manner that is beneficial to human health. The course will emphasize theoretical aspects of drug actions at the cellular and molecular levels, and on clinical aspects of pharmacology with specific examples of the application of pharmacologic principles in disease states. BoK: NA. Credit Level: G, U. Credit Hrs: 3.00

25PBIO505

Development of Computer Assisted Pharmacy Instruction

An individual studies course in which students develop computer assisted instruction programs. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PBIO574

Substances of Abuse and Addictive Disorders

The course will focus on the mechanism of action of commonly abused drugs such as opiates, stimulants, and barbiturates, alcohol and hallucinogens along with issues of drugs, diagnosis and treatment of addictive disorders. Drug abuse within the profession as well as regulatory issues concerning pharmacists will be covered. Credit Level: G. Credit Hrs: 3.00

25PBIO612

Biochemistry

The chemistry and metabolism of substances involved in life processes. Perm of College. Credit Level: G. Credit Hrs: 4.00

25PBIO613

Anatomy and Physiology

Important aspects of human physiology and anatomy relative to normal human health, pathological states, and pharmacotherapeutics will be covered. Lab exercises will be coordinated with the lecture material. Perm of College. Credit Level: G. Credit Hrs: 6.00

25PBIO622

Pharmacogenomics

Discussions of gene structure, DNA replication, transcription, translation, and recombinant DNA technology. Prereq: 25PBIO612, 25PBIO613. Credit Level: G. Credit Hrs: 2.00

25PBIO624

Principles of Pharmacology

Autonomic drugs are used to illustrate pharmacological principles including mechanism of action, cellular effects and adverse reactions

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Pharmacy-Biological Science**25PBIO624****Principles of Pharmacology**

associated with pharmacotherapy. Credit Level: G. Credit Hrs: 5.00

25PBIO740**Methods of Biochemistry and Molecular Biology**

A laboratory course in modern experimental methods used in biochemistry and molecular biology with emphasis on problem solving. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PBIO750**Reproductive Pharmacology-Physiology**

Disorders and diseases of the reproductive system impact a significant portion of the population, and not only those of reproductive age. Moreover, management of reproduction, particularly through pharmacological means, is broadly used in most societies. This elective will explore these topics. Credit Level: G. Credit Hrs: 3.00

25PBIO760**Renal Pharmacology**

How drugs and toxins affect kidney function and how the kidney influences therapeutic activity of drugs. 3 discussion hrs. Credit Level: G. Credit Hrs: 3.00

25PBIO800**Contemporary Pharmacology Techniques**

A rotational experience in pharmacology laboratories to acquaint graduate students with experimental techniques. 12 lab. hrs. per wk. Credit Level: G. Credit Hrs: 1.00-4.00

25PBIO850**Pharmacodynamics**

A study of the sites and mechanisms of drug action, fundamental receptor concepts, biological factors influencing drug action, and the principles of experimental pharmacology. 4 discussion hrs. Credit Level: G. Credit Hrs: 4.00

25PBIO851**Biochemical Neuropharmacology**

An introductory course on the principles of neuropharmacology including characteristics of neurotransmitters and their interactions with receptors. Credit Level: G. Credit Hrs: 3.00

25PBIO852**Molecular Pharmacology: Cell Signaling**

Contemporary issues in molecular cell regulation with a focus on mechanisms of intracellular signal transduction pathways: nuclear hormone receptors, the G-protein coupled transducers, the Ras-MAP kinase cascade, and the JAK/Stat pathway. Perm of Instructor. Credit Level: G. Credit Hrs: 4.00

Pharmacy-Pharmaceutics**25PCEU602****Sunscreens and Phototoxicity**

Skin structure and color. Reaction between light and skin, nature of radiation, tanning, melanogenesis and its function. Sunscreens, ultraviolet absorbers; photosensitization. BoK: NA. Credit Level: U, G. Credit Hrs: 2.00

25PCEU633**Drug Delivery I**

Pharmaceutical principles of dosage forms and pharmacy-related calculations. Physicochemical properties; biopharmaceutics; stability; formulation packaging of solution dosage forms used for various routes of administration. Perm of Instructor. Credit Level: G. Credit Hrs: 6.00

25PCEU711**Drug Delivery II**

Principles of drug delivery and their effect on pharmacokinetic responses in patients. Optimization of pharmacotherapy through selective and controlled release of drugs from various dosage forms. Prereq: 25PCEU633. Credit Level: G. Credit Hrs: 6.00

Pharmacy-Pharmaceutics**25PCEU721****Clinical Pharmacokinetics**

Principles of dosing regimen design; effects of co-variables such as age, gender, genetic make-up and disease state on pharmacokinetics; therapeutic drug monitoring; individualization of dosing regimens. Prereq: 25PCEU711. Credit Level: G. Credit Hrs: 4.00

25PCEU727**Diffusion Dissolution and Mass Transport in Pharmaceutical Systems**

Diffusion fundamentals, values of diffusion coefficients, dissolution and release models, diffusion in lipid membranes, self-diffusion, tracer diffusion, diffusion of associating solutes facilitated diffusion, skin membrane systems. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PCEU770**Advanced Pharmaceutics I: Solutions and Colloids**

Physicochemical properties related to the design and performance of solution and semisolid dose forms. Solubility and partitioning, ionic equilibria, colligative properties, degradation kinetics, suspension and emulsion stability, complexation, protein binding, polymer solutions. Prereq: 15CHEM382, 15MATH227. Credit Level: G. Credit Hrs: 4.00

25PCEU771**Advanced Pharmaceutics II: Kinetics, Transporters and Metabolism**

Physicochemical properties related to the design and performance of Dosage Forms with a focus on chemical reaction rates and solution stability. The course covers diffusion fundamentals, enzyme kinetics, transporters and efflux systems and reviews drug metabolism and pharmacokinetics. Prereq: 25PCEU770. Credit Level: G. Credit Hrs: 4.00

25PCEU772**Advanced Pharmaceutics III: Biomembranes, Dose Form Design and Metabolism**

Physicochemical properties related to the design and performance of Dosage Forms with a focus on Biomembrane barriers and dosage form design. Controlled drug release, targeted drug delivery systems and nanotechnology as they relate to dose form design. Prereq: 25PCEU770, 25PCEU771. Credit Level: G. Credit Hrs: 4.00

25PCEU780**Cosmetic Science Capstone Project I**

This course requires comprehensive evaluation of a contemporary issue in cosmetic science or topical drug development that demonstrates competency in multidisciplinary, didactic coursework and scientific, regulatory, and business aspects of research and development related to these products. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PCEU781**Cosmetic Science Capstone Project II**

This course requires comprehensive evaluation of a contemporary issue in cosmetic science or topical drug development that demonstrates competency in multidisciplinary, didactic coursework and scientific, regulatory, and business aspects of research and development related to these products. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PCEU790**Molecular Biology of Skin**

An advanced course that focuses on measuring the properties of human skin. Modern protocols for testing the effects of skin care products will be discussed. The major emphasis will be on noninvasive measurements of skin function using biophysical instrumentation. Prereq: 25PCEU791. Credit Level: G. Credit Hrs: 2.00

25PCEU791**Skin Care Science**

Cosmetic ingredients, formulation, preparation and evaluation. Surfactants and emulsions, shampoos and dentifrices. Credit Level: G. Credit Hrs: 3.00

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Pharmacy-Pharmaceutics**25PCEU792****Cosmetic Science II**

Skin and skin care products, hair, safety testing and microbiological aspects of cosmetics. Credit Level: G. Credit Hrs: 3.00

25PCEU793**Hair Care Science**

Antiperspirant, decorative and hair treatment preparations. Stability and stabilization of cosmetic products. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PCEU794**Cosmetic Science Laboratory**

Application of cosmetic science to formulation and preparation of prototypes of cosmetic classes. Credit Level: G. Credit Hrs: 3.00

25PCEU796**Color cosmetics**

Fundamentals of color cosmetics including the science of colors, color regulations, principles of formulation and testing of color cosmetics. Credit Level: G. Credit Hrs: 2.00

25PCEU797**Color Cosmetics Laboratory**

This course is designed to give hands-on experience with the formulation, laboratory scale manufacture and evaluation of color cosmetic products including lipsticks, pressed powders and liquid make-up. Perm of College. Credit Level: G. Credit Hrs: 1.00

25PCEU798**Clinical and Instrumental Testing of Skin**

This is an advanced course that focuses on measuring the properties of human skin. Modern protocols for testing the effects of skin care products will be discussed. The major emphasis will be on noninvasive measurements of skin function using biophysical instrumentation. Prereq: 25PCEU791. Credit Level: G. Credit Hrs: 3.00

25PCEU799**Cosmetic Science III: Product Formulation**

This course focuses on the formulation of cosmetic and OTC products used in personal care including skin care, hair care, antiperspirants, and oral care. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Pharmaceutical Chemistry**25PCHM623****Principles of Medicinal Chemistry**

The application of chemical, biochemical and biological principles to the design and development of clinically important drugs. Receptors, physicochemical properties of drugs, drug metabolism and prodrug concepts will be discussed. Credit Level: G. Credit Hrs: 3.00

Pharmaceutical Drug Development**25PHDD600****Statistical Prin. for Clinical Research Studies**

This course will provide an overview of the statistical principles used for the design, analysis, and interpretation of results for clinical research studies. The course will also cover the statistical topics discussed in regulatory guidances for clinical research studies. Credit Level: G. Credit Hrs: 3.00

25PHDD601**Global Drug Development**

Overview of research, legal regulatory and product life-cycle aspects that impact decisions in global pharmaceutical product development. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD602**Regulatory Affairs I: Pre-Clinical/IND**

Principles and regulatory guidelines for pre-clinical evaluation of the pharmacology, toxicology and pharmacokinetics of investigational drugs and biologics and key elements of the Investigational Drug (IND) application and Clinical Investigators brochures. Perm of College. Credit Level: G. Credit Hrs: 3.00

Pharmaceutical Drug Development**25PHDD602****Regulatory Affairs I: Pre-Clinical/IND**

Principles and regulatory guidelines for pre-clinical evaluation of the pharmacology, toxicology and pharmacokinetics of investigational drugs and biologics and key elements of the Investigational Drug (IND) application and Clinical Investigators brochures. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD603**Pre-Clinical Product Development**

The course provides an understanding of the role of formulation/dosage form development in the overall scheme for new drug approval with an emphasis on preformulation/formulation studies, current good manufacturing practices and FDA/ICH guidelines for formulation components, processes and equipment, stability testing programs and overall quality assurance. Issues pertaining to the biopharmaceutics classification system, special aspects of formulation of biologics and the impact of dosage form on drug disposition will also be underscored. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD604**Pharmaceutical Project Management**

Course challenges students with the logistic and strategic issues of modern drug development at the global level. It includes exposure to principles of project management of complex programs involving discovery, pharmaceutical development, operations, regulatory affairs, clinical affairs, and marketing. Corporate challenges involved with portfolio management and optimization will be presented focusing on tools used for optimum decision making. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD605**Clinical Trials Design and Research I**

Regulatory, statistical and operational issues in phase I trials will be discussed. The use of first dose in humans, dose escalation schemes, determination of maximal tolerated dose, mass balance, metabolism and bioavailability will be covered along with drug-drug interaction and food-effect studies. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PHDD606**Regulatory Affairs II: Clinical Research & Human Subjects Protections**

Principles and regulatory guidelines for human subjects research including analysis and assessment of regulatory issues, ethical challenges in human trials, societal pressures on product development, and current controversies in clinical trials. Principles, policies and practices in the process of transferring pre-clinical findings to human trials will be discussed. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PHDD607**Seminar in Drug Development**

The course will require the students to conduct an in-depth analysis on current issues in drug development and apply the best practices in making scientific presentations. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD701**Phase II Clinical Trials: Therapeutic Evaluation**

The role of Phase II trials in new drug development and approval with emphasis on proof-of-concept and dose-ranging requirements. Trial designs including cross-over and parallel group will be discussed. The importance of Phase II trials for making dose selections for Phase III will be explored. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD702**Medical Devices & Combination Products**

Overview on regulatory pathways for medical devices and combination products to support a successful marketing application. Perm of College. Credit Level: G. Credit Hrs: 3.00

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Pharmaceutical Drug Development**25PHDD703****Phase III Clinical Trials: Therapeutic Confirmation**

The role of Phase III trials in drug development and approval. Randomized controlled trial designs and factorial designs, selection of dose levels, management of multi-center and multi-national trials, population pharmacokinetics, choice of endpoints, surrogate endpoints, and management of milestones and metrics will be discussed. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD704**Biopharmaceutical Business and Financial Mgmt**

This course will focus on management of the biotechnology, pharmaceutical and contract research industries, including funding the drug development process, competition, business, competition, business models, intellectual property and funding of biotechnology. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD705**Pharmacovigilance and Post-Marketing Surveillance**

Introduction to pharmacovigilance and research applications for post-marketing drug surveillance. Covers basic concepts of pharmacoepidemiology and describes the New Drug Application filing and approval process related to drug safety assessment as well as adverse event monitoring. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD707**Drug Development Project I**

A problem-based/hypothesis driven research project or a comprehensive evaluation of a contemporary issue in drug/device development that demonstrates competency in multidisciplinary didactic coursework and scientific, regulatory and business aspects of new product development. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHDD708**Drug Development Project II**

A problem-based/hypothesis-driven research project or a comprehensive evaluation of a contemporary issue in drug/device development that demonstrates competency in multidisciplinary didactic coursework and scientific, regulatory and business aspects of new product development. Perm of College. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Interdisciplinary**25PHID541****Research in Pharmaceutical Sciences**

Selected research projects designed to acquaint the student with the scientific method of investigation. BoK: NA. Credit Level: U, G. Credit Hrs: 1.00-3.00

25PHID542**Research in Pharmaceutical Sciences**

See 25PHID541. BoK: NA. Credit Level: U, G. Credit Hrs: 1.00-3.00

25PHID543**Research in Pharmaceutical Sciences**

See 25PHID541. BoK: NA. Credit Level: U, G. Credit Hrs: 1.00-3.00

25PHID700**Principles of Pharmaceutical Sciences**

Introduction to basic concepts of pharmacology, pharmacodynamics, medicinal chemistry, pharmaceuticals, pharmacoconomics, and health outcomes that impact decisions in the drug development process. Perm of College. Credit Level: G. Credit Hrs: 4.00

25PHID701**Seminar in Pharmaceutical Sciences**

Presentation of research in progress and reports on assigned topics. Credit Level: G. Credit Hrs: 1.00

25PHID702**Seminar in Pharmaceutical Sciences**

See 25PHID701. Credit Level: G. Credit Hrs: 1.00

Pharmacy-Interdisciplinary**25PHID703****Seminar in Pharmaceutical Sciences**

See 25PHID701. Credit Level: G. Credit Hrs: 1.00

25PHID741**Research in Pharmaceutical Sciences**

Selected research projects to acquaint the student with the scientific method. Credit Level: G. Credit Hrs: 1.00-12.00

25PHID742**Research in Pharmaceutical Sciences**

See 25PHID741. Credit Level: G. Credit Hrs: 1.00-12.00

25PHID743**Research in Pharmaceutical Sciences**

See 25PHID741. Credit Level: G. Credit Hrs: 1.00-12.00

25PHID765**Statistical Methods in Pharmaceutical Research I**

The application of statistical analyses in decision making in pharmaceutical research. Credit Level: G. Credit Hrs: 3.00

25PHID767**Statistical Methods in Pharmaceutical Research III**

The application of designs frequently used in the pharmaceutical sciences with real problems and data. Prereq: 25PHID766. Credit Level: G. Credit Hrs: 3.00

25PHID801**Special Topics in Pharmaceutical Sciences**

This course will deal with areas of current interest in pharmaceutical sciences with topics to be chosen by the instructor. Participation will be via classroom discussion (lecture and/or seminar format), library research and/or laboratory experience. Credit Level: G. Credit Hrs: 1.00-8.00

25PHID802**Special Topics in Pharmaceutical Sciences**

See 25PHID801. Credit Level: G. Credit Hrs: 1.00-8.00

25PHID871**MS Thesis Research**

Var. gr. cr. up to 15 hrs. Credit Level: G. Credit Hrs: 1.00-15.00

25PHID872**MS Thesis Research**

See 25PHID871. Credit Level: G. Credit Hrs: 1.00-15.00

25PHID873**MS Thesis Research**

See 25PHID871. Credit Level: G. Credit Hrs: 1.00-15.00

25PHID971**PhD Dissertation Research**

Var. gr. cr. up to 15 hrs. Credit Level: G. Credit Hrs: 1.00-15.00

25PHID972**PhD Dissertation Research**

See 25PHID971. Credit Level: G. Credit Hrs: 1.00-15.00

25PHID973**PhD Dissertation Research**

See 25PHID971. Credit Level: G. Credit Hrs: 1.00-15.00

Pharmacy-Professional Experience**25PHPE615****Longitudinal Patient Care Experience**

Professional development utilizing community service, clinic visits and following patients over an extended period of time. Perm of College. Credit Level: G. Credit Hrs: 1.00

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Pharmacy-Professional Experience**25PHPE625****Longitudinal Patient Care Experience**

Professional development utilizing community service, clinic visits and following patients over an extended period of time. Perm of College.
Credit Level: G. Credit Hrs: 1.00

25PHPE635**Longitudinal Patient Care Experience**

Professional development utilizing community service, clinic visits and following patients over an extended period of time. Perm of College.
Credit Level: G. Credit Hrs: 1.00

25PHPE715**Longitudinal Practice Experience**

Early clinical practice experience in a variety of patient care settings
Perm of Instructor. Credit Level: G. Credit Hrs: 1.00

25PHPE821**Introductory Full-Time Ambulatory Professional Experience**

Introductory full-time professional experience Perm of College. Credit Level: G. Credit Hrs: 6.00

25PHPE822**Introductory Full-Time Institutional Professional Experience**

Introductory full-time professional experience Perm of College. Credit Level: G. Credit Hrs: 6.00

25PHPE833**Introduction to Advanced Professional Experience**

Focus on clinical skills that develop ability to function independently on advanced professional experience rotations. Students will make case presentations and develop treatment plans. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHPE901**Medical/Surgical Specialty Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE902**General Medicine Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE903**Ambulatory Care/Organized Health Care Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE904**Ambulatory Care/Community Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE905**Drug Information/Drug Policy Development Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE906**Direct Patient Care Selective Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

Pharmacy-Professional Experience**25PHPE906****Direct Patient Care Selective Advanced Experience**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE907**Advanced Professional Experience Elective I**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE908**Advanced Professional Experience Elective II**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE909**Advanced Professional Experience Elective III**

Advanced Professional Experience rotation that emphasizes professional and general ability- based outcomes of the Center for the Advancement of Pharmaceutical Education (CAPE). Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE921**Advanced Practice Experience I-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes. Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE922**Advanced Practice Experience II-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes. Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE923**Advanced Practice Experience III-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes. Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE924**Advanced Practice Experience IV-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes. Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE925**Advanced Practice Experience V-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes Perm of College.
Credit Level: G. Credit Hrs: 6.00

25PHPE926**Advanced Practice Experience VI-NTPD**

Advanced Professional Experience rotation that emphasizes professional and general ability-based outcomes. Perm of College. Credit Level: G. Credit Hrs: 6.00

Pharmacy-Pharmacy Practice**25PHRX582****Survey of Natural Medicine**

An introduction to homeopathic, nutritional and herbal medicine along with future applications, current legal status and important considerations for pharmacists to be aware of when advising patients.
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Pharmacy-Pharmacy Practice**25PHRX544****Pharmacy Practice for Geriatric Patients**

Overview of geriatric and long term patient care. Highlights pharmacist's role, major responsibilities, and opportunities available. Credit Level: G. Credit Hrs: 2.00

25PHRX556**Home Infusion Pharmacy**

Therapies specific to Home Care Pharmacy practice will be discussed and compared with other practice settings. Credit Level: G. Credit Hrs: 2.00

25PHRX557**Compounding in Practice**

An in-depth experience with contemporary prescription compounding of extemporaneous products. Credit Level: G. Credit Hrs: 2.00

25PHRX614**Fundamentals of Pharmacy Practice**

An overview of the pharmacy profession, its opportunities and goals. Basic information such as the top 200 drugs, abbreviations, and medical terminology are included, as well as early pharmacy experience rotations. Perm of College. Credit Level: G. Credit Hrs: 4.00

25PHRX626**United States Health Care System**

A study of the components of the health care system and the roles of pharmacists within this system. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHRX634**Pharmacy Practice Skills Development I**

A competency based course which includes a stepped approach guiding students from introductory material to advanced, and will provide experience in pharmacy informatics and drug information sources, prescription compounding and dispensing, patient counseling, clinical problem solving, physical assessment, and pharmaceutical math skills. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX650**Advanced Pharmaceutical Care Skills-NTPD**

Provide the non-traditional PharmD student with the technology and practice skills that will allow them to function independently and develop pharmaceutical care plans for a variety of patient specific problems. Perm of Instructor. Credit Level: G. Credit Hrs: 2.00

25PHRX682**Medical Ethics and the Movies**

Ethical issues which are the theme of movies and other media will be analyzed by students as they relate to contemporary pharmacy practice. Credit Level: G. Credit Hrs: 2.00

25PHRX683**Professional Development through Association Activities**

Students will develop an understanding of the prominent role of professional organizations in contemporary pharmacy by discussion, presentation and attendance of association meetings. Credit Level: G. Credit Hrs: 1.00-3.00

25PHRX684**History of Pharmacy**

The historical development of Pharmacy in the United States will be examined including professionalization, commercial and industrial growth, Statutory Regulation and changing materia medica, dosage forms and standardization with time. Credit Level: G. Credit Hrs: 2.00

25PHRX685**Interdisciplinary Collaborative Healthcare**

An interdisciplinary course designed to provide hands-on experience in the concepts and rationale for interdisciplinary healthcare. Perm of College. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Pharmacy Practice**25PHRX686****Service Learning In Pharmacy Practice**

Students provide service to area community partner agencies providing care to the underserved of the TriState region. In the process of providing a service, the students reinforce and refine concepts learned in course work, focusing on disease state management and communication skills. Perm of College. Credit Level: G. Credit Hrs: 1.00-3.00

25PHRX714**Pharmacy Practice Skills Development II**

Development of pharmacy practice skills based on learning in required didactic courses. Lab sessions will be coordinated with therapeutics courses. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX726**Drug Literature Evaluation**

Student centered course focusing on the development of critical thinking skills to evaluate medical and pharmaceutical literature. Perm of College. Credit Level: G. Credit Hrs: 1.00

25PHRX727**Pharmacy Ethics**

Guides students in how to think critically and thoughtfully about ethical decisions they face in practice. It will present both western and non-western sources of ethical thought. The course will utilize a unique 6-step decision-making process to provide a framework for making effective decisions. Pharmacy based cases, which will reflect a diversity of practitioners, settings and cultures, will be presented to encourage critical thinking and enforce an interactive approach. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX732**Health Systems Pharmacy Practice**

A study of the expanding roles and responsibilities of pharmacists in the health care system. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PHRX734**Pharmacy Practice Skills Development III**

Pharmacy practice skills development based on learning in other required didactic courses. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX813**Pharmacy Practice Skills Development IV**

Pharmacy practice skills development based on learning in other required didactic courses. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX831**Pharmacy Seminar**

A forum for the development of an in-depth understanding of the opportunities and challenges being faced by pharmacy and the health care system. Guest speakers focus on areas of dynamic change in pharmacy along with student presentations. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHRX931**Contemporary Pharmacy Practice**

The course provides students with contemporary thinking and information dealing with recent advances in various areas of pharmacy practice. Perm of College. Credit Level: G. Credit Hrs: 6.00

25PHRX965**Clinical Pharmacy Project I**

A problem-based, clinical-related project that requires integration and application of the didactic coursework and experiential training in order to generate a rational solution to a well defined question using established scientific methodologies. Perm of College. Credit Level: G. Credit Hrs: 1.00

25PHRX966**Clinical Pharmacy Project II**

A problem-based, clinical-related project that requires integration and

H=University Honors course.

BoK (Breadth of Knowledge) Coding. DC: Diversity & Culture. EC: English composition. FA: Fine Arts. HP: Historical Perspectives. HU: Humanities. LT: Literature. NS: Natural Sciences. QR: Quantitative Reasoning. SE: Social & Ethical Issues. SS: Social Sciences.

Pharmacy-Pharmacy Practice**25PHRX966****Clinical Pharmacy Project II**

application of the didactic coursework and experiential training in order to generate a rational solution to a well defined question using established scientific methodologies. Prereq: 25PHRX965. Credit Level: G. Credit Hrs: 3.00

Pharmacy-Therapeutics**25PHTH556****Dental Problems and the Pharmacist**

An overview of dental health and its relationship with pharmacy. Credit Level: G. Credit Hrs: 1.00

25PHTH581**Evaluation and Selection of Cardiac Drugs**

Students will evaluate pharmacokinetic and/or pharmacodynamic properties of an assigned category of cardiovascular drug based on published literature. Credit Level: G. Credit Hrs: 2.00

25PHTH632**Therapeutics of Inflammatory, Respiratory and Gastrointestinal Diseases**

The course integrates the principles of physiology pharmacology and medicinal chemistry with those of pharmacotherapeutics of selective examples of inflammatory conditions and diseases of the respiratory and gastrointestinal systems. Perm of Instructor. Credit Level: G. Credit Hrs: 5.00

25PHTH649**Critical Literature Evaluation-NTPD**

Reading, understanding and application of information from published literature to solve care problems by the transfer of medical research into clinical practice. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHTH651**Therapeutics of Cardiovascular Disorders-NTPD**

The chemistry, pharmacology and therapeutic use of drugs to treat a variety of cardiovascular diseases will be covered. Pathophysiology, mechanisms of drug action, pharmacokinetics/ pharmacodynamics, adverse drug effects/drug interactions, and patient monitoring of cardiovascular drugs will be covered. n Perm of College. Credit Level: G. Credit Hrs: 4.00

25PHTH652**Therapeutics of Renal & Electrolyte Disorders-NTPD**

Current approaches to the treatment of selected abnormalities of the exocrine and endocrine functions of the kidney and associated urinary tract structures with an emphasis on the proper use of drugs for or during renal impairment. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHTH653**Therapeutics of Infectious Diseases-NTPD**

Principles and application of appropriate antimicrobial therapy of various infectious diseases. Host-drug-microbe interactions, mechanisms of drug action and resistance, spectrum of activity, kinetics/dynamics, uses, adverse effects, patient monitoring of anti-infectives will be covered. Perm of College. Credit Level: G. Credit Hrs: 4.00

25PHTH654**Therapeutics of CNS Disorders-NTPD**

Principles and application of appropriate therapy to diseases of the CNS. The medicinal chemistry, pharmacology and pharmacotherapeutics of drugs used to treat CNS diseases, as well as the abuse potential/liability of these agents will Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHTH655**Therapeutics of Hematologic and Oncologic Disorders-NTPD**

The chemistry, pharmacology and therapeutic use of oncology products in various neoplastic diseases. It will include mechanisms of drug action and resistance, pharmacokinetics/dynamic issues, adverse

Pharmacy-Therapeutics**25PHTH655****Therapeutics of Hematologic and Oncologic Disorders-NTPD**

effects and patient monitoring of antineoplastic agents. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHTH656**Therapeutics of Endocrine, Respiratory, Gastrointestinal and Inflammatory Disorders-NTPD**

Principles and application of appropriate therapy of various endocrine, respiratory, gastrointestinal and inflammatory diseases. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHTH701**Critical Care Therapeutics**

The pathophysiology, pharmacotherapy, and decision making processes for the treatment of patients who are critically ill. Perm of College. Credit Level: G. Credit Hrs: 2.00

25PHTH713**Therapeutics of Cardiovascular Disorders**

Drug therapy decision making (drug selection, patient monitoring and counseling) in patients with cardiovascular disease. Pathophysiology, pharmacology, medicinal chemistry of agents along with therapeutic applications and patient counseling will be discussed. Perm of Instructor. Credit Level: G. Credit Hrs: 5.00

25PHTH723**Therapeutics of Renal and Electrolyte Disorders**

Drug therapy decision making in patients with renal and urinary tract disorders, pathophysiology pharmacology, medicinal chemistry of agents along with therapeutic applications will be discussed. Perm of Instructor. Credit Level: G. Credit Hrs: 3.00

25PHTH731**Therapeutics of Infectious Diseases**

Principles and application of appropriate antimicrobial therapy of various infectious diseases. Chemistry, structure activity relationships, host-drug-microbe interactions, mechanisms of drug action and resistance, spectrum of activity, kinetics/dynamics, uses, adverse effects dose forms, patient counseling and monitoring of anti-infectives. Perm of Instructor. Credit Level: G. Credit Hrs: 5.00

25PHTH733**Therapeutics of Endocrine Disorders**

Treatment of diseases involving the endocrine system. The medicinal chemistry, pharmacology and pharmacotherapeutics of hormones and drugs used to treat these diseases will be discussed in an integrated format. Perm of Instructor. Credit Level: G. Credit Hrs: 4.00

25PHTH811**Therapeutics of Neurological Disorders**

Therapeutics of diseases involving the central nervous system. The medicinal chemistry, pharmacology and therapeutics of drugs used to treat diseases and abuse potential/liability of drugs used to treat these diseases will be discussed in an integrated format. Perm of College. Credit Level: G. Credit Hrs: 5.00

25PHTH832**Therapeutics of Skin and Mucous Membrane Disorders**

Treatment of skin, eye, ears, nose, throat, vaginal tract, anorectal area and other mucous membrane diseases will be discussed with an emphasis on the role of the pharmacist in managing the patient therapy. 3 lec. hrs. per wk. Perm of College. Credit Level: G. Credit Hrs: 3.00

25PHTH834**Therapeutics of Cancer and Hematological Disorders**

This course focuses on the chemistry, pharmacology and therapeutic use of oncology products and therapeutic decision-making. Perm of Instructor. Credit Level: G. Credit Hrs: 4.00

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