PHARMACY (PHAR)

PHAR 201. Introduction to Pharmacy. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Open to undergraduate students with an interest in pursuing pharmacy as a career. Consists of presentations related to the profession of pharmacy and the pharmaceutical sciences, preparing for admission to the School of Pharmacy and employment opportunities in the profession after graduation. Graded as pass/fail.

PHAR 501. Pharmaceutical Calculations. 1 Hour.
Semester course; 1 lecture hour (delivered online). 1 credit. This course is designed in a student-centered learning format that supports self-directed learning. The course will help students develop the skill set needed to screen out the distractors from the determinant variables in a statement problem and guide their thought processes in sequential use of information to solve calculation problems seen in pharmacy practice.

PHAR 502. Introduction to Pharmacoeconomics. 1 Hour.
Semester course; 1 lecture hour. 1 credit. The goal of the course is two-fold: 1) introduce students to the terms and processes of pharmacoeconomics and 2) inform students about the intersection between careers in health economics and pharmacy. Lecture, discussion and class assignments.

PHAR 503. Ethics and Equity. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. Enrollment is restricted to Pharm.D. students. This course is intended to help students recognize and address ethical dilemmas using a systematic approach. Students will be challenged to evaluate viable options for resolving ethical dilemmas with the needs of patients and other key stakeholders in mind. The intersection of bioethics, health equity and health disparities will be explored. Students will be expected to demonstrate conceptual understanding, self-awareness and critical-thinking skills through a series of individual and small group assignments, including reflective exercises and case-based discussions.

PHAR 505. Pathophysiology and Patient Assessment Skills. 3 Hours.
Semester course; 3 lecture hours. 3 credits. This course provides an in-depth exploration of patient assessment techniques and the understanding of pathophysiology underlying various diseases and conditions. Students will develop the necessary skills to perform comprehensive health and medication assessments, interpret clinical findings and understand the underlying physiological processes necessary in patient-centered pharmacy practice. Topics covered include health and medication history-taking, basic physical assessment techniques, interpretation of common laboratory and other objective data, and common disease processes and their impact on different body systems. This course will also build on communication and information skills presented in concurrent courses.

PHAR 506. Nonprescription Medications and Self-care. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to Pharm.D. students. Introduction to the concepts of self-care. In this course, students will learn how to identify signs and symptoms of problems that can be managed and treated through self-care, to determine which signs and symptoms are exclusions for self-care and to identify appropriate health care practitioners for referral. Students will also learn about non-medication methods to alleviate and prevent signs and symptoms of self-care problems. Additionally, students will be able to evaluate nonpharmacologic treatments that may be used to prevent and treat self-care issues. These concepts will be learned through the use of patient cases, self-care consultations, lectures, conferences and active participation in classroom and conference activities.

PHAR 507. Introduction to Health Informatics. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to Pharm.D. students. This course provides an introduction to the field of health informatics, exploring the intersection of health care, information technology and data management. Students will develop an understanding of the key concepts, theories and applications of health informatics, and gain practical skills to analyze, design and implement health information systems. Topics covered include electronic health records, health data standards, health care analytics, privacy and security, telehealth, and emerging trends in health informatics. Graded Pass/Fail/Honors.

PHAR 508. Evidence-based Pharmacy I. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to Pharm.D. students. This course is part of a P2 year-long series that will teach students how to evaluate and apply the principles of evidence-based medicine to contemporary pharmacy practice. This course will focus on case reports, case series, cross sectional, qualitative, case control and cohort studies. Within each module, students will learn the principles of epidemiology, biostatistics, study design and drug literature evaluation and apply these principles to patient care and other contemporary pharmacy practice issues. The course will use lectures, outside readings, class discussions and pre-class and in-class exercises to accomplish these objectives.

PHAR 509. Evidence-Based Pharmacy I: Introduction to Pharmacy Information Skills. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. This is the first of a three-course series introducing students to information skills necessary for the practice of evidence-based pharmacy. Lecture topics include drug information resources, efficient information retrieval, assessment of drug information sources, relationship of pharmaceutical industry to drug literature, and basic laws and regulations associated with prescription processing. Class exercises will be used to promote the appropriate use of drug information resources in pharmacy practice.

PHAR 511. Evidence-based Pharmacy II. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to Pharm.D. students. This course is part of a P2 year-long series that will teach students how to evaluate and apply the principles of evidence-based medicine to contemporary pharmacy practice. This course will focus on randomized controlled clinical trials, systematic reviews and meta-analyses. Within each module, students will learn the principles of epidemiology, biostatistics, study design and drug literature evaluation and apply these principles to patient care and other contemporary pharmacy practice issues. The course will use lectures, outside readings, class discussions and pre-class and in-class exercises to accomplish these objectives.

PHAR 512. Health Promotion and Disease Prevention. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Introduction to the role of the pharmacist in health promotion and disease prevention. Skills for pharmacist involvement in implementing aspects of Healthy People 2010, educating patients and addressing health care disparities will be emphasized.

PHAR 513. Contemporary Pharmacy Practice. 2 Hours.
Semester course; 2 lecture hours. 2 credits. The goal of the course is to introduce students to basic principles of professional patient-centered pharmacy practice. The common thread between the various topics is the link between pharmacists' professionalism and effective medication use. Pharmacists who consistently engage in professional behaviors are better able to serve the health care needs of their patients.

PHAR 515. Continuous Professional Development I. 1 Hour.
Yearlong course; 1 lecture hour. 1 credit. This the first of four yearlong courses designed to advance students' professional development. The large- and small-group sessions and co-curricular activities encompass experiences that enhance self-awareness and professionalism in student pharmacists. Graded as CO with no credit for fall semester with a pass/fail and credit assigned for spring semester.

PHAR 523. Foundations I. 2 Hours.
Semester course; 6 laboratory hours. 2 credits. A competency-based course that is intended to give the first-year pharmacy student an introduction to the pharmacy profession, emphasizing the skills and values that are necessary to be a competent, caring pharmacist. It is the first in a six-semester practice-based course sequence that introduces the language and tools of contemporary pharmacy practice with an emphasis on calculations, communication, medical terminology, drug information, prescription processing, health promotion, patient assessment and problem-solving.

PHAR 524. Foundations II. 1.5 Hour.
Semester course; 4.5 laboratory hours. 1.5 credits. This competency-based course is the second in a six-semester practice-based course sequence with an emphasis on the preparation and dispensing of selected extemporaneous compounds including liquid, solid and semisolid preparations and the appropriate use of selected OTC point-of-care devices.

PHAR 525. Communications in Pharmacy Practice. 2 Hours.
Semester course; 1.5 lecture hours and an average of 1 conference hour per week. 2 credits. A study of the theory and techniques of communication and counseling techniques related to pharmacy practice. Supervised practice in developing basic communication skills.

PHAR 526. Community Pharmacy Practice. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Helps students develop the necessary foundation for the management of activities in community pharmacy practice settings with many of the skills developed in this course being equally applicable to other practice settings. Focuses on financial management and managed care as it affects community practice.

PHAR 529. Clinical Therapeutics Module: Introduction to Special Populations. 2 Hours.
Module course; 2 lecture hours. 2 credits. Introduction to issues affecting the pharmacotherapy of special populations such as pediatric and geriatric patients.

PHAR 530. Introductory Pharmacy Practice Experience: Community Practice. 4 Hours.
Semester course; daily for 4 weeks. 4 credits. Students will meet with an assigned community pharmacist 5 days per week for 8 hours for 4 consecutive weeks at the end of the P-1 year. Students will practice pharmacy under supervision while learning about the medication use system in community pharmacy practice. Students will demonstrate core practice skills: communication, pharmacy calculations, ethics, medication safety, wellness and health promotion, informatics and critical thinking. Graded as honors, high pass, pass, fail.

PHAR 532. Introductory Pharmacy Practice Experience: Hospital Practice. 3 Hours.
Semester course; 40 hours per week for three weeks. 3 credits. Students will meet with an assigned hospital pharmacist for a three-week (120 hours) experience at the end of the P-2 year to practice pharmacy in a hospital environment and learn about hospital pharmacy management and medication distribution systems. Students will demonstrate core practice skills: communication, calculations, ethics, medication safety, technology, informatics and critical thinking. Graded as honors, high pass, pass, fail.

PHAR 533. Introductory Pharmacy Practice Experience: Patient Care. 0.5 Hours.
Semester course; 0.5 laboratory hours. 0.5 credits. Students will complete 20 hours of approved experiences under supervision. An orientation, reading assignments, mandatory class time and assessments will be conducted. Students will also prepare a reflection describing the benefits to the community when pharmacists engage in the health and education needs of the community. Students will develop a sense of personal responsibility for addressing the problems and needs of society. Graded as Pass/Fail.

PHAR 534. Foundations III. 1.5 Hour.
Semester course; 1 lecture and 2 laboratory hours. 1.5 credits. This competency-based course is the third in a six-semester, practice-based course sequence with an emphasis on the clinical application of medications in the management of various disease states. The second-year pharmacy student will develop skills in the assessment and therapeutic monitoring of selected disease states and drug therapies. Topics include cardiovascular, endocrine and pulmonology therapeutics.

PHAR 535. Foundations IV. 1.5 Hour.
Semester course; 1 lecture and 2 laboratory hours. 1.5 credits. This competency-based course is the fourth in a six-semester, practice-based course sequence. Introduces students to the skills required to practice in institutional settings such as hospitals and long-term care facilities and in home health care.

PHAR 540. Self-Care and Alternative and Complementary Treatments. 2.5 Hours.
Module course; variable lecture and conference hours. 2.5 credits. Introduction to the concepts of self-care and alternative and complementary treatments. Students will learn to distinguish treatable signs and symptoms of common diseases and exclusions for care that require referral to appropriate health care practitioners. Non-medication methods to alleviate and prevent self-care problems are reviewed. Patient cases, self-care consultations, lectures and conferences will be used to facilitate learning.

PHAR 541. Patient Assessment in Pharmacy Practice. 2 Hours.
Semester course; variable lecture and laboratory hours. 2 credits. Provides students with an introduction to patient assessment skills necessary in patient-centered pharmacy practice. Course topics include basic physical assessment techniques, interpretation of findings from laboratory tests or physical examinations and documenting findings from patient assessments. Laboratory time will be used to practice various assessment skills. The course will also build on communication and information skills presented in previous courses.

PHAR 544. Clinical Therapeutics Module: Cardiovascular. 4.5 Hours.
Module course; variable hours. 4.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with cardiovascular diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 545. The U.S. Health Care System. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. Enrollment is restricted to students in the Doctor of Pharmacy program. Designed to introduce the student to the components of the U.S. health care system and the interrelationships among health care consumers and providers. It also presents the organizational framework and regulatory and reimbursement mechanisms which are the foundations of the U.S. health care delivery system.

PHAR 546. Pharmacy-based Immunization Delivery. 1.5 Hour.
Semester course; 1 lecture and .5 independent study hours. 1.5 credit hours. Enrollment is restricted to students in the Doctor of Pharmacy program. This course, which is based on the CDC's national educational standards for immunization, emphasizes a health care team approach, fosters interventions that promote disease prevention and public health, and prepares pharmacists with the comprehensive knowledge, skills and resources necessary to provide immunization services to patients. This course is associated with the American Pharmacists Association's Pharmacy-Based Immunization Delivery Certificate Program. Each student will receive a Certificate from APhA after successful completion of the course. This course combines self-study course work and didactic live education sessions, along with hands-on administration techniques. Graded as pass/fail.

PHAR 547. Managing Professional Patient-centered Practice. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. Introduces pharmacy students to the basic principles of managing a professional pharmacy practice. Students will learn patient-centered practices associated with effective medication use and positive patient outcomes. Instruction will be through lectures, case discussions and portfolio assignments.

PHAR 549. Personalized Medicine. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Provides an introduction to personalized medicine as related to pharmacy practice. The course will be taught using lectures, individual work, small-group discussions and total classroom discussion using homework, in-class assignments and patient case scenarios.

PHAR 550. Pharmacy Practice Research. 3 Hours.
Yearlong course; 3 lecture hours. 3 credits. Focuses on the development of skills necessary for identifying issues and questions related to pharmacy practice, evaluating the literature to identify possible solutions, designing a feasible research project, developing a data analysis plan and a formal written proposal for the project. Students will ultimately present their research proposals to faculty and students. The course is graded as CO with no credit for fall semester with a letter grade and credit assigned for spring semester.

PHAR 551. Pharmacy-based Point of Care Testing. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. Enrollment is restricted to Pharm.D. students. This course will be based on the American Pharmacists Association and the University of Florida's Pharmacy-based Test and Treat certificate training program. Each student will receive a certificate from APhA after successful completion of the course. Students will complete the self-study over 10 weeks (asynchronously) prior to the five-week module. Graded as Pass/Fail.

PHAR 555. Clinical Therapeutics Module: Endocrinology. 2.5 Hours.
Module course; variable hours. 2.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with endocrine diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 556. Clinical Therapeutics Module: Neurology. 3.5-4 Hours.
Module course; 3.5-4 lecture hours. 3.5-4 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with neurological diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 565. Evidence-based Pharmacy II: Research Methods and Statistics. 2.5 Hours.
Module course; variable hours. 2.5 credits. This is the second of a three-course series introducing students to the principles and practice of evidence-based pharmacy. Lecture topics include research methods, concepts and principles of study design, and appropriate use of statistics. Class exercises promote a working understanding of statistical principles and a general understanding of research methods.

PHAR 566. Evidence-based Pharmacy III: Drug Literature Evaluation. 2 Hours.
Module course; variable hours. 2 credits. This is the third of a three-course series introducing students to the principles and practice of evidence-based pharmacy. Lectures, outside readings, class discussions and exercises will be used to develop the skills necessary for the evaluation of biomedical literature and application to pharmacy practice.

PHAR 602. Clinical Therapeutics Module: Psychiatry. 3 Hours.
Module course; variable hours. 3 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with psychiatric illnesses are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 603. Clinical Therapeutics Module: Respiratory/Immunology. 2.5 Hours.
Semester course; 2.5 lecture hours. 2.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with respiratory and immunologic illnesses are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 604. Clinical Therapeutics Module: Infectious Diseases. 4 Hours.
Semester course; 4 lecture hours (delivered face-to-face or hybrid). 4 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with infectious diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 605. Clinical Therapeutics Module: Hematology/Oncology. 2.5 Hours.
Module course; variable hours. 2.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with hematologic diseases and cancer are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 606. Clinical Therapeutics Module: Nephrology/Urology. 2 Hours.
Module course; variable hours. 2 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with kidney and urologic diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 607. Clinical Therapeutics Module: Dermatology/EENT. 2 Hours.
and Joint Module course; variable hours. 2 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with diseases of the bone, skin, ears, eyes, nose and throat are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 609. Clinical Therapeutics Module: Reproductive Health, Dermatology, EENT, Bone and Joint. 3.5 Hours.
Semester course; 3.5 lecture hours. 3.5 credits. Enrollment is restricted to Pharm.D. students. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in reproductive health issues, dermatology, EENT, joint and patients with bone diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, nonprescription and complementary treatments will be reviewed.

PHAR 614. Research Techniques. 1-4 Hours.
Semester course; variable hours. Variable credit. Credit will be given on the basis of 1 credit per 45 hours of laboratory time. Prerequisite: approval of research adviser. Provides new graduate student with the laboratory skills necessary to perform research in the chosen discipline. The training time required will depend upon the discipline. Graded as pass/fail. Crosslisted as: PCEU 614/MEDC 614.

PHAR 615. Continuous Professional Development II. 1 Hour.
Yearlong course; 1 lecture hour. 1 credit. This the second of four yearlong courses designed to advance students' professional development. The large- and small-group sessions and co-curricular activities encompass experiences that enhance self-awareness and professionalism in student pharmacists. Graded as CO with no credit for fall semester with a pass/fail and credit assigned for spring semester.

PHAR 618. Clinical Therapeutics Module: Gastrointestinal/Nutrition. 2.5 Hours.
Module course; variable hours. 2.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with gastrointestinal diseases are integrated in this course. Nutrition will be covered. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 619. Clinical Therapeutics Module: Women's Health/Bone. 2 Hours.
Module course; variable hours. 2 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in women's health issues and patients with bone diseases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, non-prescription and complementary treatments will be reviewed.

PHAR 620. Clinical Therapeutics Module: Critical Care/Toxicology and Complex Patients. 2.5 Hours.
Module course; 2.5 lecture hours. 2.5 credits. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with critical care diseases, toxicology emergencies and complex cases are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, nonprescription and complementary treatments will be reviewed.

PHAR 621. Pharmacoeconomics. 2 Hours.
Module course; variable hours. 2 credits. Introduces the terms and processes of pharmaceutical economics and phamacoeconomics. Students learn to assess the impact of economics on phamaceutical use, evaluate pharmacoeconomic studies and make decisions on the cost effectiveness of therapeutic alternatives. Lectures, discussion and class assignments.

PHAR 623. Patient Medication Safety. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Provides the fundamental background necessary to understand patient medication safety, including multidisciplinary responsibilities for medication safety and approaches to the management and prevention of medication errors. Current issues in medication safety and actual medication error cases will be used in the class.

PHAR 626. Advanced Pharmacotherapy Research Methods. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the instructor. This course focuses on research techniques used to assess the clinical response to drug therapy, including advantages and disadvantages of different techniques. Published clinical trails are evaluated to illustrate these concepts including statistical assessment. Recent FDA New Drug Applications are reviewed when appropriate to illustrate regulatory aspects of the evaluation of clinical trials.

PHAR 631. Advanced Pharmacy Practice Management. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Classical, social, and systems views of management are introduced with emphasis on the uses of implicit control. The sociology of professions and the nature of professional work are explored; the management of the professional's work is discussed in detail. Design and operation of integrated drug information, drug distribution, and drug use control systems is explored. (Nontraditional program).

PHAR 637. Introduction to Research Methods in Pharmaceutical Sciences. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Assists practicing pharmacist managers and researchers in the development, implementation, monitoring and evaluation of programs for the delivery of pharmaceutical care and the practice of pharmacy. Introduces students to the empirical method and to provide them with a fundamental knowledge base for developing salient research questions that could lead to the articulation of testable research hypotheses, accomplished by addressing those research techniques and designs most commonly used in pharmacy and health services research.

PHAR 638. Pharmaceutical Benefit Management. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Addresses the need for pharmacy benefit management, the types of organizations that use pharmacy benefit management and the primary tools, techniques and practices used to manage the pharmacy benefit. Presents through lectures, readings, class discussions and a research paper.

PHAR 640. Foundations V. 1.5 Hour.
Semester course; 1 lecture and 2 laboratory hours. 1.5 credits. This competency-based course is the fifth in a six-semester practice-based course sequence with an emphasis on the clinical application of medications in the management of various disease states. The third-year pharmacy student will develop skills in the assessment and therapeutic monitoring of selected disease states and drug therapies. Topics include psychiatry, neurology and oncology therapeutics.

PHAR 645. Foundations VI. 1.5 Hour.
Semester course; 1 lecture and 2 laboratory hours. 1.5 credits. This competency-based course is the final installment in a six-semester, practice-based course sequence. It is intended to give the third-year pharmacy student opportunities to improve acquired skills and gain additional skills necessary to provide the highest level of patient-centered care by optimizing drug therapy outcomes.

PHAR 646. Ambulatory Care Pharmacy in the Free Clinic Setting. 2 Hours.
Semester course; 1 lecture and 1 clerkship (experiential education) hour. 2 credits. Enrollment is restricted to current P3 students in the Pharm.D. program. This course includes lectures, case discussions, clinical experience, quizzes, reflections, student self-evaluation and case presentations. Students will participate in four six-hour sessions in an interprofessional practice at a free clinic over the semester, as well as periodic on-campus discussions to reinforce clinical learning. Class discussions may require prereadings and Blackboard readiness quizzes. Graded as pass/fail/honors.

PHAR 652. Health Promotion and Communication in Pharmacy Practice. 2 Hours.
Semester course; 2 lecture hours (delivered face-to-face or hybrid). 2 credits. Enrollment is restricted to Doctor of Pharmacy students. The course will provide a study of the theory and techniques of communications and counseling related to pharmacy practice. The course is designed to introduce students to the role of the pharmacist in health promotion and disease prevention and build communication skills to help prepare students for practice. Students will learn the knowledge and skills required for pharmacist involvement in these activities as well as obtain practical experience in the development and delivery of these services. Upon successful completion of the course, students will be recognized as trained "lifestyle coaches" eligible to deliver the evidence-based National Diabetes Prevention Program.

PHAR 660. Community Pharmacy Practice Management II. 1.5 Hour.
Semester course; 1.5 lecture hours. 1.5 credits. Enrollment is restricted to Pharm.D. students. This course helps students develop the necessary foundation for the management of activities in community pharmacy and any other practice settings. The course focuses on helping students understand what it takes to offer clinical services in pharmacy settings and be able to develop plans to implement them.

PHAR 663. Advanced Diabetes Management. 3 Hours.
Semester course; 3 lecture hours. 3 credits. An in-depth study of the care of patients with metabolic syndrome and diabetes. The etiology, pathophysiology, clinical course, clinical manifestations, prevention and management of diabetes will be reviewed through the use of online didactic presentations, patient cases, self-directed learning and active participation in classroom discussion. Emphasis is placed on the use of data to optimize pharmacotherapy for patient scenarios.

PHAR 664. Making Medicines: The Process of Drug Development. 1 Hour.
Semester course; 1 lecture hour (delivered online). 1 credit. This is a self-paced, eLearning course developed in collaboration with a team of academic leaders designed to deliver a scientific education curriculum highlighting the fundamental processes and rigor drug manufacturers undertake to research, develop and deliver new medicines to patients. Graded as Pass/Fail.

PHAR 665. Residency and Fellowship Preparatory. 1 Hour.
Semester course; 1 lecture hour (delivered online or face-to-face). 1 credit. Intended for third-year Pharm.D. students interested in pursuing postgraduate training (residency, fellowship, etc.). This course will include readings, lectures, topic discussions, panel discussions, classroom activities and out-of-class assignments. Some of the topics include, but are not limited to, letters of intent, reference letters, interviewing and preparing for American Society of Health-System Pharmacists midyear clinical meeting and/or personal placement service. Graded as Pass/Fail/Honors.

PHAR 666. Advanced Topics in Pharmacy. 1-3 Hours.
Semester course; 1-3 lecture hours. 1-3 credits. Presentation of pharmacy subject matter by lectures, conferences or clinical site visits in selected areas of advanced study providing a discussion of topics beyond that provided in the required curriculum.

PHAR 667. Seven Habits of Effective Pharmacists. 1 Hour.
Semester course; 1 lecture hour. 1 credit. This course is intended to provide students with an overview of what constitutes emotional intelligence and how they can harness that knowledge to become better practitioners. Structured around Stephen Covey's "7 Habits of Highly Effective People," students will spend time learning how to understand and use EI skills in their own personal, as well as professional, life's journey. Graded as Pass/Fail/Honors.

PHAR 668. Academic Pharmacy. 3 Hours.
Semester course; 2 lecture and 1 practicum hours. 3 credits. Prerequisite: PHAR 523 with a minimum grade of B. Enrollment requires approval by course coordinators. This course is for third-year Doctor of Pharmacy students interested in exploring or pursuing a career in academia. Students will learn the structure of academia, types of research, teaching methods and core concepts of academia through weekly two-hour didactic instruction and service in PHAR 523 as small-group facilitators, volunteer patients, proctors and classroom facilitators. Graded as Pass/Fail/Honors.

PHAR 669. Pediatric Pharmacy Practice. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Students will develop and apply a systematic process for assessing, treating and creating a monitoring plan for a pediatric patient. Students will be required to integrate new knowledge regarding the pathophysiology, clinical presentation and treatment of selected pediatric diseases with the basic principles of pediatric clinical pharmacology previously learned in the core Doctor of Pharmacy curriculum. The course will be taught through lecturers with expert pediatric knowledge in their respective specialties. Student and faculty will deliver presentations, case workshops, drug information questions and individual quizzes, and a post-assessment examination will be used to help students learn and apply basic course concepts. Students interested in specializing in pediatric pharmacy or who would like to gain more experience in pediatrics are the intended audience. Graded as Pass/Fail/Honors.

PHAR 670. Geriatrics – Demystifying a Population. 2 Hours.
Semester course; 2 lecture hours. 2 credits. This course employs an interprofessional team approach to teach key concepts in comprehensive geriatric care. The course aims to develop students' geriatric knowledge base and clinical reasoning skills. Students will also gain experience working in teams and sharing information.

PHAR 671. Applied Pharmacoeconomics and Outcomes Research. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Presents theoretical and practical topics relating to pharmacoeconomics and health outcomes research. Students will learn to critically appraise and discuss pharmaceutical outcomes research through lectures, readings, class participation and projects. Requires students to plan, initiate and present an outcomes research project that considers both clinical and economic issues of product or service selection.

PHAR 672. Advances in Mental Health Pharmacy Practice. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Students choose the topics for discussion in this elective course. They actively learn through small group discussions of the pharmacotherapy of psychiatric disorders. Students gain experience in patient rounds, practice-based projects, interpretation of clinical practice guidelines, use of the Internet and computer presentations.

PHAR 673. Advanced Cardiovascular Pharmacotherapy. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Prerequisite: PHAR 544. Students will gain a broader knowledge and deeper understanding of the etiology, pathophysiology, clinical course, clinical manifestations, prevention and management of cardiovascular disorders through the use of online didactic presentations, videos, patient cases, self-directed learning and active participation in classroom discussion.

PHAR 674. Navigating DME as a PharmD. 1 Hour.
Semester course; 15 lecture hours. 1 credit. Enrollment is restricted to students in the Doctor of Pharmacy program on the Richmond campus. Students will acquire foundational knowledge on the proper use of durable medical equipment and devices routinely purchased over the counter by patients. The course explores the pharmacist's essential role in expanding patients' access to medical counseling, particularly in medically underserved areas of the U.S., and how that necessitates a working knowledge of durable medical equipment and devices. The course addresses issues in patient access through a health literacy lens, emphasizing the importance of empathy in practice. It takes an interprofessional approach to patient-controlled devices, exposing students to the philosophies of occupational therapy and other rehabilitation professions regarding disease and disability. Hands-on lab activities will be incorporated into most class sessions. Graded as pass/fail.

PHAR 677. Advanced Infectious Diseases Pharmacotherapy. 2 Hours.
Semester course; 2 lecture hours. 2 credits. The specialty of infectious diseases includes diagnosis, pathophysiology, treatment and monitoring of patients with infections. It also includes ensuring appropriate use of antimicrobials in order to mitigate antimicrobial resistance progression. The pharmacist's contribution in this area is primarily in the appropriate selection, use and monitoring of antimicrobial therapy. This course serves as an advanced introduction to the use of antimicrobial agents, with emphasis on selected disease states, microbiological and laboratory aspects and antimicrobial stewardship principles.

PHAR 678. Health Informatics and Excel: A Practical Partnership. 1 Hour.
Semester course; 15 lecture hours. 1 credit. Enrollment is restricted to Doctor of Pharmacy students; minimum of three students at distant site campus. The course is intended to provide students with an overview of health informatics and the data contained in available administrative databases. Students will learn how to understand and transform these data into information and knowledge, using Excel and Excel VBA. Using data visualization techniques and linking to PowerPoint, students will learn how to effectively present to a variety of audiences. Graded as pass/fail.

PHAR 680. Introduction to Data Science and Rapid Prototyping. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to students in the Pharm.D. program. This introductory course integrates data science and rapid prototyping techniques with pharmacy practice, focusing on health care applications. Students will engage in hands-on learning, using code-free approaches applied to natural language processing, machine learning, 3D printing, virtual reality and microcontroller programming. The course bridges technology and patient-centered care, enhancing problem-solving and technical skills in a health care context.

PHAR 685. Contemporary Topics in Pharmacy. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Explores how pharmacists prepare for and respond to the issues that affect the practice of pharmacy. Contemporary issues that relate to major health care needs, government health care activities, views by health professionals, health policies, health care economics, pharmacist attitudes and behaviors, pharmacy laws and regulations, pharmacy traditional views and opinions will be examined. Discussion and debate on these issues will help to prepare students for their future in pharmacy practice.

PHAR 688. Applied Pharmacoepidemiology Research Methods. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: EPID 571 and BIOS 544 or permission of instructor. Provides an overview of the field of pharmacoepidemiology and its relationship to health care and research. Topics including selecting data sources, study design, data manipulation and analytical issues relevant to the conduct of pharmacoepidemiology research are covered. Students complete exercises to reinforce these topics, as well as prepare a formal project proposal. Research studies are also reviewed to help students develop skills in the critical evaluation of the pharmacoepidemiology literature.

PHAR 689. Pharmaceutical Policy Analysis. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 500 or ECON/HADM 624, or permission of instructor. Examines a breadth of pharmaceutical policy issues pertaining to stakeholders in health care including the federal government, state governments, the pharmaceutical industry, pharmacies and pharmacists, and consumers. Using an economic approach to policy analysis, various competing thoughts and challenges to health care will be presented. Special attention will be paid to theoretical foundations and scientific rigor in approaching policy analysis.

PHAR 690. Pharmacy Research Seminar. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Required of all graduate students in pharmacy. Research seminar.

PHAR 691. Special Topics in Pharmacy. 1-5 Hours.
Semester course; 1-5 lecture hours. 1-5 credits. Presentation of subject matter is by lectures, tutorial studies and/or library assignments in selected areas of advanced study not available in other courses or as part of the research training. Graded as honors, high pass, pass, fail.

PHAR 697. Directed Research in Pharmacy. 1-15 Hours.
Semester course; 1-15 credits. Research leading to the M.S., Pharm.D., or Ph.D. degree.

PHAR 702. Pharmacy Practice Management. 2.5 Hours.
Semester course; 2.5 lecture hours. 2.5 credits. Enrollment is restricted to Pharm.D. students. The goal of the course is to develop the necessary foundation for the management of activities in pharmacy practice settings. This course focuses on financial management and managed care as it affects community practice, however many of the elements of this course can be applied to multiple settings. It is not the purpose of this course to make students management or economic experts. Equipped with this essential information, students will be able to apply principles of financial management to pharmacy practice related problems and, by understanding principles of managed care pharmacy, will be better able to understand and practice in the current pharmacy practice environment.

PHAR 703. Clinical Therapeutics Module: Complex Patient Cases and Critical Care. 3.5 Hours.
Semester course; 3.5 lecture hours. 3.5 credits. Enrollment is restricted to Pharm.D. students. The principles of medicinal chemistry, pharmacology, pharmaceutics, pathophysiology and pharmacotherapy to the application of drug therapy in patients with critical care diseases, toxicology emergencies and complex cases from throughout the curriculum are integrated in this course. The clinical presentation, course of illness, prevention and treatment of diseases using prescription, nonprescription and complementary treatments will be reviewed.

PHAR 715. Continuous Professional Development III. 1 Hour.
Yearlong course; 1 lecture hour. 1 credit. This the third of four yearlong courses designed to advance students' professional development. The large- and small-group sessions and co-curricular activities encompass experiences that enhance self-awareness and professionalism in student pharmacists. Graded as CO with no credit for fall semester with a pass/fail and credit assigned for spring semester.

PHAR 724. Pharmacy Law. 2.5 Hours.
Semester course; 2.5 lecture hours. 2.5 credits. A study of federal and state laws, including statutes, regulations and cases, affecting the practice of pharmacy and the distribution of drugs. This course includes material on ethics.

PHAR 730. Continuous Professional Development IV. 0.5 Hours.
Yearlong course; 0.5 lecture hours. 0.5 credits. This the fourth of four yearlong courses designed to advance students' professional development. The large- and small-group sessions and co-curricular activities encompass experiences that enhance student pharmacists. Graded as CO with no credit for fall semester with a pass/fail and credit assigned for spring semester.

PHAR 760. Acute Care Pharmacy Practice I. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in an acute care hospital setting. Students will actively participate in the delivery of patient care on a general medicine service. Students may participate in the following types of activities: rounding with a health care team, obtaining patient histories, identifying problems requiring therapeutic interventions, solving problems, consulting with physicians, monitoring patient outcomes and providing educational sessions for the professional staff. These services are expected to be integrated with the hospital pharmacy services. Graded as H/HP/P/F.

PHAR 761. Advanced Hospital Pharmacy Practice. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in a hospital pharmacy department. Students will actively participate in pharmacy operations and services relating to systems for drug distribution and drug control, scope of clinical services provided by the department, management of the department, and department relationships within the institution and health system. Graded as H/HP/P/F.

PHAR 762. Geriatrics Pharmacy Practice. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in a variety of settings with a predominately geriatric focus. These sites may include community pharmacies, specialty clinics, rehabilitation hospitals, skilled nursing facilities, home-based consult services and assisted living facilities. Students will focus on the unique medication-related needs of seniors and actively apply that special knowledge to provide quality pharmacy care to older adults. Graded as H/HP/P/F.

PHAR 763. Ambulatory Care Pharmacy Practice. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in an ambulatory care, multidisciplinary practice setting. These sites may include hospital-based clinics, physician group practices, safety net clinics and managed care facilities that provide health care directly to patients. Students will actively participate in obtaining patient medical and medication histories, evaluating drug therapies, developing pharmacy care plans, monitoring patients' therapeutic outcomes, consulting with physicians and non-physician providers and providing education to patients and health care professionals. Graded as H/HP/P/F.

PHAR 764. Community Pharmacy Practice. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. In this course, students will participate in all facets of pharmacy practice in the community pharmacy setting. Students will be involved in dispensing, compounding, telephone consultation, patient counseling and nonprescription drug recommendations. Students also will be involved in patient assessment, monitoring intervention and follow-up care designed to improve the outcomes of drug therapy. Graded as H/HP/P/F.

PHAR 765. Elective I. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. In this course, students will be able to participate in a variety of pharmacy practice settings. Graded as H/HP/P/F.

PHAR 766. Elective II. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. In this course students participate in a variety of pharmacy practice settings. Graded as H/HP/P/F.

PHAR 767. Clinical Selective I. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. Restricted to Pharm.D. dual-degree candidates. In this course students participate in a clinical rotation and may choose one of these pharmacy practice settings: ambulatory care, acute care, advanced community, institutional or geriatric. Graded as H/HP/P/F.

PHAR 768. Advanced Community Pharmacy Practice. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in a community pharmacy setting. Students will focus primarily on patient care services and secondarily on patient-focused dispensing functions in these pharmacies. These services will focus on the identification, resolution and prevention of medication-related problems dealing with general medicine issues and medication therapy management. Students will actively participate in the following types of activities: interacting with patients, caregivers and prescribers; counseling, self-care consults and recommendations; administration of immunizations; and health and wellness screenings and information. Graded as H/HP/P/F.

PHAR 769. Clinical Selective II. 5 Hours.
Semester course; daily for 5 weeks (200 clinical hours). 5 credits. Restricted to Pharm.D. dual-degree candidates. In this course students participate in a clinical rotation and may choose one of these pharmacy practice settings: ambulatory care, acute care, advanced community, institutional or geriatric. Graded as H/HP/P/F.

PHAR 771. Student Pharmacist Professionalism. 1 Hour.
Continuing course; variable hours. 1 credit at end of four-year curriculum. Selected presentations and activities related to the development and enhancement of professional behavior in student pharmacists. Graded as CO until final semester, with pass/fail awarded on completion.

PHAR 773. Acute Care Pharmacy Practice II. 5 Hours.
Semester course; daily for 5 weeks. 5 credits. This course consists of 200 hours of advanced pharmacy practice experience in an acute care hospital setting. Students participate in the delivery of patient care in a general medicine or a medical specialty service. Students may participate in the following types of activities: rounding with a health care team, obtaining patient histories, identifying problems requiring therapeutic interventions, solving problems, consulting with physicians, monitoring patient outcomes and providing educational sessions for the professional staff. These services are expected to be integrated with the hospital pharmacy services. Graded as H/HP/P/F.