**PPS 520 SPECIAL TOPICS IN PHARMACY LAW.** (2)
Discussion of the legal framework and special legal issues in pharmacy practice. Topics will include application of antitrust laws to pharmacy, patent and trademark issues relevant to pharmacy, legal issues related to prescription drug insurance programs, professional liability and legislative issues such as drug product selection.

**PPS 605 PHARMACOECONOMICS AND DECISION ANALYSIS.** (2)
Pharmacoeconomics and Decision Analysis is designed to equip students with a basic working knowledge and understanding of the application of pharmacoeconomic analysis and the results can be applied to clinical practice. Prereq: ECO 201, PPS 940 and/or permission of instructor.

**PPS 665 ETHICAL ISSUES IN CLINICAL RESEARCH.** (3)
Based on NIH guidelines for Responsible Conduct of Research, this course will present ethical and regulatory guidelines for conducting clinical research. Prereq: Participation in curriculum leading to Graduate Certificate in Clinical Research Skills, or permission of instructor. (Same as CPH 665.)

**PPS 700 INTRODUCTION TO PHARMACEUTICAL OUTCOMES AND POLICY.** (2-3)
This course provides an overview of approaches to the study of pharmaceutical outcomes and public policy. The course is designed to give students an introduction to the field, provide an opportunity to conduct introductory research in one of the various approaches, and experience the research environment through three half day research rotations in selected areas. Prereq: Graduate standing and permission of instructor.

**PPS 701 PHARMACOEPIDEMIOLOGY.** (3)
This course will provide an overview of the field of pharmacoepidemiology and its relationship to health care research. Various topics including methodology and analytical issues relevant to the conduct of pharmacoepidemiologic research will be covered. Time will also be spent reviewing existing papers in the field of pharmacoepidemiology. Prereq: CPH 605 and STA 580 or equivalent; may be concurrent. (Same as CPH 713.)

**PPS 702 PHARMACEUTICAL HEALTH POLICY.** (2-3)
The purpose of this course is to enable students to think systematically about the pharmaceutical health policy problems and the various strategies for their solution. This course will cover a range of theoretical and empirical literature on health care and public policy. Topics covered will include a basic understanding of the policy process and policy analysis, and a historical development of the health care system with special focus on quality, access, and cost. In addition, the course covers a range of reform initiatives focused on pharmaceutical policy and regulation. Prereq: Graduate standing and permission of instructor.

**PPS 704 PHARMACY INFORMATICS.** (2-3)
This course explores the theory and methods of measuring the performance and quality of pharmaceutical health outcomes emphasizing evidence-based practice and quality improvement approaches. Particularly, the course focuses on the use of data and information systems to measure quality, performance, and outcomes. Topics covered include designing and testing outcome based measures, measuring and evaluating satisfaction, measuring and evaluating treatment, risk adjustment, survey methods, patient records, encounter data, administrative data, claims data, and an assessment of the current outcome based standard National Committee on Quality Assurance, HEDIS 2009. Prereq: Graduate standing and permission of instructor.

**PPS 706 INTERMEDIATE PHARMACOECONOMICS AND DECISION ANALYSIS.** (3)
This course is designed to equip students with a working knowledge and understanding of the application of pharmacoeconomic analysis with an emphasis on critical review of the literature. Prereq: Graduate standing and permission of instructor.

**PPS 750 PHARMACEUTICAL OUTCOMES AND POLICY JOURNAL CLUB.** (1)
Pharmaceutical Outcomes and Policy journal club is a weekly meeting scheduled for scholarly discussion and presentation of journal articles and relevant topics (new methodologies, current pharmaceutical policy drugs issues, etc.) pertaining to the fields of pharmaceutical policy and pharmaceutical outcomes.

**PPS 760 SPECIAL TOPICS IN PHARMACY PRACTICE AND SCIENCE.** (1-4)
This course deals with emerging concepts in Pharmacy Practice and Science which are not covered in other courses. May be repeated under a different subtitle to a maximum of twelve credits. Prereq: Graduate standing and permission of instructor.
PPS 764 DRUG DEVELOPMENT REGULATION AND CLINICAL RESEARCH. (3)
A study of the pharmaceutical development process and its regulation, including a detailed examination of clinical research methodologies. Students will demonstrate their competence by developing a clinical trial protocol. Prereq: Enrollment in the Pharmaceutical Sciences graduate program or consent of instructor.

PPS 767 DISSERTATION RESIDENCY CREDIT. (2)
Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.

PPS 778 SEMINARS IN PHARMACY PRACTICE AND SCIENCE. (1)
Reports and discussion of pertinent research and literature in pharmaceutical outcomes and policy. Required of all graduate students. Prereq: Graduate standing and permission of instructor.

PPS 790 RESEARCH IN PHARMACY PRACTICE AND SCIENCE – PRE QUAL. (1-12)
Research work to be conducted in selected areas of pharmacy practice and science. Prereq: Graduate standing and permission of instructor.

PPS 811 COMPUTER APPLICATIONS IN PHARMACY. (2)
A guide to the selection and use of computers in pharmaceutical practice. Descriptions of functions, cost-benefit considerations, hardware and software, capabilities of various systems, language, applications to patient profiles, inventory control and accounts are considered.

PPS 813 GERIATRIC PHARMACY. (3)
A course designed to educate students in the basic knowledge of attitudes and skills required to meet the pharmaceutical needs of the elderly. Topics include discussions of the aging process, physiological and psychological changes in the elderly, how these changes influence patient compliance and the responses to drug and nondrug treatments, monitoring drug use in long-term care facilities, and special community services available to the elderly. Prereq: PHR 849, 852, 853, 854 and 856 or permission of instructor. (Same as GRN 513.)

PPS 832 ADVANCED COMMUNITY PRACTICE MANAGEMENT. (2)
A study of the principles and methods unique to the management of a community pharmacy, building on previous foundations and focusing on the entrepreneurial aspects of management. Prereq: PHR 831 and consent of instructor.

PPS 833 ADVANCED INSTITUTIONAL PRACTICE MANAGEMENT. (2)
Application of management principles to institutional and group practices. Emphasis is on the acquisition, distribution and control of drugs by pharmacists in the institutional practice settings and the justification, establishment and evaluation of clinical pharmacy services. Prereq: PHR 831, PPS 848.

PPS 848 INSTITUTIONAL PRACTICE AND STERILE PRODUCTS. (4)
An introduction to the practice of pharmacy in institutional settings and clinics. Emphasis is placed on principles of parental drug preparation, home health care and the delivery of pharmaceutical services in group practices. Lecture with some laboratory experiences and demonstrations. Prereq: PHR 805; coreq: PHR 849.

†PPS 892 CLINICAL DRUG COMMUNICATIONS.

PPS 895 INDEPENDENT PROBLEMS IN CLINICAL PHARMACY. (1-3)
Selected problems in patient care, drug information, pharmacy administration, and pharmaceutical technology as related to pharmaceutical services. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PPS 896 INDEPENDENT PROBLEMS IN PHARMACY. (1-3)
Selected problems pertaining to the various aspects of pharmacy which may include such problems as pharmaceutical procedures, pharmaceutical formulations, pharmaceutical history, and pharmaceutical economics. May be repeated to a maximum of six credits. Prereq: Consent of instructor.
PPS 910 INTRODUCTION TO PHARMACY PRACTICE. (3)
An introduction to the practice of pharmacy within the major practice settings. Includes an introduction to the profession and discussions of the pharmacist within the health care system, professional pharmacy organizations, models and sites of practice, postgraduate educational and career opportunities, an introduction to product compounding and administration, professionalism, and required community service experiences. Prereq: Admission to first year, College of Pharmacy.

PPS 913 PHARMACOLOGICAL BASIS OF THERAPEUTICS: ANTIBIOTICS. (3)
A study of the pathophysiology and microbiology of infectious diseases concentrating on the pharmacology of the therapeutic agents (antibiotics) used to treat those diseases, including discussions of their rational use. Variable mixture of lectures, discussions and independent study. Prereq: Admission to the first year, College of Pharmacy.

PPS 916 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES I. (2)
A study of various nonprescription pharmaceuticals, medical and surgical supplies and appliances commonly found in ambulatory pharmacy practice sites, their rational use and therapeutic efficacy. Decision making skills for ambulatory patient triage are emphasized. The use of home remedies and their limitations in the treatment of minor ailments is considered. Variable mixture of lecture, discussions and independent study. Prereq: Admission to the first year, College of Pharmacy.

PPS 919 PATIENT CARE LABORATORY I. (1)
An integration and application of the skills needed to fill the professional responsibilities of pharmacy practice as they relate to patient centered care and the patient care process, utilizing principles taught in the corequisite courses to provide the contextual framework for the skills considered. Prereq: Admission to the first year College of Pharmacy. Coreq: All concurrent PHR 91X series courses.

PPS 920 COMMUNICATION AND BEHAVIOR IN PHARMACY PRACTICE. (3)
An introduction to the social and behavioral issues that impact health including their influence on the pharmacist-patient relationship and the ability of the pharmacist to provide patient care. Includes discussions of stress and stress coping, communication with patients and other health care professionals, cultural and religious influences on patient compliance and disease management, and required community service experiences. Prereq: PPS 910 and PPS 919.

PPS 923 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: NUTRITION, HEALTH PROMOTIONS. (3)
Consideration of the role of the pharmacist in health promotion and disease prevention including both pharmacologic and non-pharmacologic methods. Major problems of nutrition and certain metabolic/chronic disorders for which nutrition plays a pivotal role will be addressed including hypertension, cancer, and eating disorders. In addition the pharmacology of drugs affecting the gastrointestinal tract and drugs used to treat common gastrointestinal problems are discussed. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy.

PPS 926 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES II. (2)
A continuation of PPS 916. Variable mixture of lecture, group discussions and independent study. Prereq: Admission to the first year, College of Pharmacy and PPS 916.

PPS 928 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE I. (4)
An introductory practice experience designed to provide students a structured, supervised program of participation in the practice of pharmacy. Experiences may involve on-call and evening/weekend responsibilities. Offered on a pass/fail basis only. Laboratory, 40 or more hours per week. Prereq: Successful completion of required courses in the 920 series and consent of instructor.

PPS 929 PATIENT CARE LABORATORY II. (1)

PPS 930 LEGAL, ETHICAL, AND ACCESS ISSUES IN PHARMACY. (4)
The legal, ethical and access issues affecting the practice of pharmacy. Course includes community service experiences. Prereq: PPS 920.

PPS 939 PATIENT CARE LABORATORY III. (2)
A continuation of PPS 929. Prereq: PPS 929. Coreq: All concurrent PHR 93X series courses.
PPS 940 EVIDENCE BASE FOR PHARMACY PRACTICE. (4)
A discussion of the evidence base for pharmacy practice including sources of drug information, drug study design, applied data analysis, and biostatistics in the interpretation and critical analysis of biomedical literature with the purpose of developing evidence based care recommendations for a given patient or patient population. The course is implemented using a variety of educational methods including lectures, structured reading of biomedical literature, and practice in developing protocols to address various health-related research questions. Course includes community service experiences. Prereq: PPS 930.

PPS 946 ADVANCED PHARMACOTHERAPY I. (5)
An advanced study of the pathology, pathophysiology and optimal treatment of common diseases. Through a series of case studies students will acquire and/or reinforce their skill at understanding diseases and developing and defending optimal treatment plans for successfully managing those diseases. The case studies utilized will integrate relevant pathophysiological, pharmacokinetic, pharmacoeconomic and pharmacological concepts with appropriate patient specific parameters. Students will be expected to communicate and defend their decisions, including the process followed in making those decisions, in understandable, appropriate written and verbal formats. Variable mixture of discussion, lecture, independent study and laboratory. Prereq: PHR 93X series courses; coreq: PHS 947 and PPS 949.

PPS 948 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE II. (4)
A continuation of PPS 928 – Introductory Pharmacy Practice Experience I. Prereq: Successful completion of required PHR 940 series courses and consent of instructor.

PPS 949 PATIENT CARE LABORATORY IV. (1)

PPS 950 PHARMACEUTICAL POLICY AND PUBLIC HEALTH. (4)
An introduction to health economics, pharmaceutical policy and public health, including issues of access to and disparities in healthcare and pharmaceuticals, health and disease indicators, health promotion, emergency preparedness, and the involvement of the pharmacist in public health and pharmaceutical policy. Course includes community service experiences. Prereq: PPS 940.

PPS 953 CURRENT TOPICS IN PHARMACY SEMINAR. (1)
A seminar course dealing with some of the current clinical and nonclinical issues affecting health care and health care practitioners. Prereq: PPS 940.

PPS 957 ADVANCED PHARMACOTHERAPY II. (5)
A continuation of PPS 946. Variable mixture of discussion, lecture, independent study and laboratory. Taught part of term. Prereq: Admission to third year, College of Pharmacy; co-req: PPS 959.

PPS 959 PATIENT CARE LABORATORY V. (2)

PPS 960 PHARMACY PRACTICE MANAGEMENT. (5)
A discussion of pharmacy practice management in both community and health system practice settings including general business, human, financial, and operations management, and quality assurance/risk management issues. Course includes community service experiences. Prereq: PPS 950.

PPS 966 ADVANCED PHARMACOTHERAPY III. (5)
A continuation of PPS 957. Variable mixture of discussion, lecture and independent study. Taught part of term. Prereq: Admission to the third year, College of Pharmacy; PPS 957, 959; co-req: PPS 969.

PPS 967 ADVANCED PHARMACOTHERAPY IV. (5)
A continuation of PPS 966. Variable mixture of discussion, lecture and independent study. Taught part of term. Prereq: Admission to third year College of Pharmacy; PPS 957, 959; co-req: PPS 969.

PPS 969 PATIENT CARE LABORATORY VI. (2)
PPS 972 INTRODUCTION TO THE ADVANCED PHARMACOTHERAPY GATEWAY AND PHARMACY RESIDENCY TRAINING. (2)
This course introduces students to the concepts of the pharmacist’s involvement in research, education, postgraduate training, and to local sites of scholarly clinical pharmacy practice. The course will provide information and tools for pursuing postgraduate training, including a curriculum vitae and foundational education on human subject protection and residency training. Prereq: Student in good standing in the second professional year of the College of Pharmacy curriculum.

PPS 973 INTRODUCTION TO CRITICAL CARE PHARMACY. (2)
Advanced, clinically-focused course building on critical care foundation provided in PHR 956/PPS 957. Prereq: Successful completion of PHR 956/PPS 957.

PPS 974 CLINICAL ASPECTS OF PRESCRIPTION MEDICATIONS. (2)
A discussion of the clinical aspects of prescription medications designed to supplement, integrate and enhance the material covered in the Patient Care Laboratory course series (PHR 919-969) and the Advanced Pharmacotherapy course sequence (PPS 946, PHR 956, PPS 957, PPS 966 and PPS 967). Emphasis is placed on 1) a critical analysis of the important difference between various drugs and drug classes, and 2) refining drug information and clinical communication skills through simulated written drug consults and oral exams involving other health care practitioners. Prereq: PHR 956 and PPS 957. Coreq: PPS 960, 966, 967 and 969.

PPS 975 EMERGENCY MEDICINE. (2)
Emergency Medicine is an evolving and increasingly recognized practice area for clinical pharmacists. As interest and professional opportunities continue to expand in this therapeutic arena, it is imperative for students to become cognizant of the various aspects of this unique specialty. In addition, the practice of Emergency Medicine is a collection of various therapeutic areas, so this course will not only serve to expose the learner to many new and exciting topics but also serve as a refresher of many topics that are briefly covered in the regular curriculum with an added emphasis on the rapid treatment of the undifferentiated patient. Prereq: PY3.

PPS 976 COMPUTER AND INFORMATION TECHNOLOGIES IN PHARMACY. (2)
A discussion and introduction to the use of computer and other information technologies, such as Personal Data Assistants (PDAs) and patient management software, as aids to providing more effective and efficient pharmaceutical care services. Lecture: 1 hour; laboratory, 2 hours per week. Prereq: Admission to the second or third year, College of Pharmacy.

#PPS 979 TOXICOLOGY IN CLINICAL PRACTICE. (2)
Potentially any substance can be considered a poison if enough of it is ingested, and patients who ingest chemicals, drugs and dietary supplements are commonly seen in clinical practice. This elective course will help develop the pharmacy student’s knowledge of the toxic effects of chemicals and drugs when humans are exposed to these agents in acute/toxic overdoses. In addition, the course will emphasize how to prevent exposures, and drug therapy associated with each type of ingestion. This elective is highly recommended for students interested in critical care and/or emergency medicine as clinical toxicology consultations are an element of practice in these areas. Coreq: PY3 core courses.

PPS 988 ADVANCED PHARMACY PRACTICE EXPERIENCE. (3-6)
A clinical experience in the use of drugs in the diagnosis, treatment and management of diseases. Emphasis is placed on a rationale of drug therapy, the provision of contemporary pharmaceutical care services and functioning as a member of an interdisciplinary health care team. Experiences will be obtained in a variety of areas and may involve on-call and evening/weekend responsibilities. May be repeated to a maximum of 48 credits. Laboratory, 40 or more hours per week. Prereq: Admission to the fourth year, College of Pharmacy and permission of instructor.

PPS 991 ADVANCED COMMUNITY PRACTICE. (6)
This course is an advanced pharmacy practice experience (APPE) focused on the prevention, diagnosis, treatment and management of diseases in patients receiving care in the community setting. Emphasis is placed on choosing rational drug therapy, providing contemporary patient care services and functioning as a member of an interdisciplinary health care team. Experiences may include on call and evening/weekend responsibilities. Prereq: Admission to the fourth year, College of Pharmacy; and permission of instructor.
PPS 992 ADVANCED COMMUNITY HOSPITAL. (6)
This course is an advanced pharmacy practice experience (APPE) focused on the prevention, diagnosis, treatment and management of diseases in patients receiving care in the community hospital setting. Emphasis is placed on choosing rational drug therapy, providing contemporary patient care services and functioning as a member of an interdisciplinary health care team. Experiences may include on call and evening/weekend responsibilities. Prereq: Admission to the fourth year, College of Pharmacy; and permission of instructor.

PPS 993 AMBULATORY CARE PRACTICE. (6)
This course is an advanced pharmacy practice experience (APPE) focused on the prevention, diagnosis, treatment and management of diseases in patients receiving care in an ambulatory setting. Emphasis is placed on choosing rational drug therapy, providing contemporary patient care services and functioning as a member of an interdisciplinary health care team. Experiences may include on call and evening/weekend responsibilities. Prereq: Admission to the fourth year, College of Pharmacy; and permission of instructor.

PPS 994 ACUTE CARE/INPATIENT PRACTICE. (6)
This course is an advanced pharmacy practice experience (APPE) focused on the prevention, diagnosis, treatment and management of diseases in patients receiving care in an acute care/inpatient setting. Emphasis is placed on choosing rational drug therapy, providing contemporary patient care services and functioning as a member of an interdisciplinary health care team. Experiences may include on call and evening/weekend responsibilities. Prereq: Admission to the fourth year, College of Pharmacy; and permission of instructor.

PPS 995 PATIENT CARE PRACTICE ELECTIVE. (6)
This course is an advanced pharmacy practice experience (APPE) elective focused on the prevention, diagnosis, treatment and management of disease in patients receiving care in a variety of settings, including community, hospital, long-term care, and specialized clinics. Emphasis is placed on integrating knowledge of therapeutics and pathophysiology in the provision of care to patients, providing drug therapy management, delivering contemporary patient care services, and functioning as a member of an interdisciplinary health care team. Prereq: Admission to the fourth year, College of Pharmacy; and permission of the instructor.

PPS 996 NON-PATIENT CARE PRACTICE ELECTIVE. (6)
This course is an advanced pharmacy practice experience (APPE) that allows the student to sample pharmacy practice opportunities outside of the required experiences. An elective experience may be selected (but not limited to) in the following areas: Practice management administration, pharmacy education, pharmacoconomics, pharmacoepidemiology, research, pharmaceutical industry, association management, governmental, and international experiences. Prereq: Admission to the fourth year, College of Pharmacy; and permission of the instructor.