

Pharmacy Graduate Studies (PGS)

PGS 480E Concepts in Biomedical Pharmacology 4 Hours

Explore fundamental concepts of pharmacology, pharmacologic agents and relevant physiology and disease pathophysiology in the areas of neuropharmacology; cardiovascular; gastrointestinal; renal; hematopoiesis; immune/asthma/allergy; endocrine; anti-virals and anti-retrovirals; cancer therapeutics and immunotherapy.

PGS 180J, 280J, 380J Advanced Pharmaceutics: Laboratory Research 1-3 Hours

PGS 180M, 280M, 380M Topics in Advanced Pharmaceutics 1-3 Hours

PGS 380S Basic Principles in Experimental Design and Statistics 3 Hours

Basic principles in experimental design and statistics with a focus on real world situations that may be encountered while performing scientific research.

PGS 380T Texas Venture Labs Startup Practicum 3 Hours

Places students in teams and connects them with Austin-area startup companies. The teams then execute business consulting projects for the startup companies. Explores how these projects help companies better understand their market, competition, business model, etc, in order to accelerate their path to market and funding decisions.

PGS 381F Product Development 3 Hours

Application of physical-chemical principles to the formulation and development of stable and bioavailable drug delivery systems.

PGS 381G Advanced Manufacturing Pharmacy 3 Hours

Physical-mechanical properties of compacts, drugs, and polymers. Properties of biodegradable and nonbiodegradable polymers in pharmaceutical formulations. Process validation and pilot plant scale-up.

PGS 381H Advanced Pharmaceutical Processing 3 Hours

Didactic and laboratory exposure to pharmaceutical processes used in the design, development, and optimization of drug delivery systems. Emphasis on equipment and machinery used in pharmaceutical manufacturing of these dosage forms, with discussion of other issues, such as technology transfer and scale-up.

PGS 181J, 281J, 381J Advanced Pharmacy Administration: Laboratory Research 1-3 Hours

PGS 181M, 281M, 381M Topics in Advanced Pharmacy Administration 1-3 Hours

PGS 381N Health Care Systems 3 Hours

Overview of the health care system in the United States and examination of the classic and contemporary literature on managed health care systems, with emphasis on pharmacy-related issues. Studies the advantages, disadvantages, and effects of these systems on patients, providers, and payers.

PGS 381V Communication Skills for Translational Scientists 3 Hours

Explores oral and written communication skills for scientists conducting translational research at the interface of basic and clinical science. Introduction to the skills necessary to successfully convey medication and healthcare-related data in a professional manner. Involves discussions addressing subjects such as medical writing, grant writing, abstract development, and poster design.

PGS 381W Molecular and Pharmacological Basis of Therapeutics 3 Hours

Broad issues of molecular pharmacotherapeutics, including potential and challenge for optimization of drug therapy, implications for drug development and regulation, ethical and social aspects of pharmacogenomics, signal transduction, use of knock-out mice, and informed consent process in pharmacogenomic research.

PGS 382F Analytical Methods in Biologics Formulation 3 Hours

Explore theory and practice of techniques used to characterize and analyze pre-formulated and formulated biologics, as well as basic biology specific to formulation sciences.

PGS 282J Advanced Pharmacotherapy Seminar I 2 Hours

Discussion of advanced pharmacotherapeutics topics, case presentations, and journal clubs at the advanced practitioner level.

PGS 282K Advanced Pharmacotherapy Seminar II 2 Hours

Discussion of advanced pharmacotherapeutics topics, case presentations, and journal clubs at the advanced practitioner level.

PGS 382R Topics in Recent Advances in Pharmaceutics 3 Hours

Presentation of topics of current research interest in physical pharmacy, biopharmaceutics, and pharmacokinetics.

PGS 282S, 382S Advanced Biopharmaceutics 2-3 Hours

Provides students with a more comprehensive background in biopharmaceutics and the drug approval process.

PGS 382T Basic Concepts of Tumor Biology 3 Hours

A survey of cancer biology that includes tumor pathology, initiation, progression and metastasis, genetic instability, DNA damage and repair, cell cycle control, oncogenes, tumor suppressor genes, and the immune response.

PGS 382U Drug Discovery and Development 3 Hours

Examine the fundamental principles of drug discovery and development including patenting, clinical trials, and marketing.

PGS 382V Pharmaceutical Biotechnology 3 Hours

Application of protein, oligonucleotide, and related molecules as therapeutic agents: stability, formulation, kinetics, dynamics.

PGS 182W Ethics in Science and Clinical Practice 1 Hour

Ethical considerations in the conduct of clinical research, including institutional review boards, adherence to protocol, Food and Drug Administration and related site reviews, protection of human subjects through informed consent and confidentiality, and the use of genetic banks in research.

PGS 383D Neuropharmacology I 3 Hours

An advanced survey of neurotransmitters and systems in the brain. Covers experimental approaches and pharmacological analysis at behavioral, neurochemical, and neuroanatomical levels to determine mechanisms of actions of drugs that act on the brain.

PGS 383E Neuropharmacology II 3 Hours

Explore neuropharmacological concepts related to brain development, organization and anatomy; neuroendocrinology, neuroimmunology and neuroinflammation; gut-brain axis; neurobiology of addiction; and others.

PGS 383G Analytical Methods in Biologic Formulations 3 Hours

Examine primary challenges in formulating biologics. Compare relevant techniques to characterize and analyze biopharmaceuticals and explore how they are applied in pre-formulated and formulated biologics.

PGS 383M Health Innovation Entrepreneurship 3 Hours

Explore a highly interactive and interdisciplinary approach for developing health innovation, including drug product, devices, and digital health solutions. Examine foundational entrepreneurial and innovation concepts for identifying and developing ideas, performing market validation, conducting customer discovery, assessing competition, and identifying skills for effectively working in teams.

PGS 383N Solution Theory and Disperse Systems 3 Hours
The theory and technology of solutions and heterogeneous systems; applications of scientific principles to the design of pharmaceutical products; a study of factors influencing physical chemical characteristics, stability, and biopharmaceutical activity of solutions and coarse dispersions; review of recent literature.

PGS 383P Advanced Pharmacokinetics 3 Hours
Study of the kinetics of absorption, distribution, metabolism, and excretion of drugs in the intact organism.

PGS 383Q Statistics in Translational Science 3 Hours
Pharmaceutical statistical analysis with a focus on choosing the appropriate statistical test to address both basic science and clinical research hypotheses. Students use the JMP software package to execute statistical analysis on their own pharmaceutical research projects.

PGS 383R Rate Processes in Pharmaceutical Systems 3 Hours
A study of decomposition and stabilization of drug molecules in solutions and in solid dosage forms; principles of kinetics and diffusion as applied to pharmaceutical systems.

PGS 383V Research Design and Methods 3 Hours
Explore a practical approach to classical experimental design, hypothesis generation, development of translational research methods that incorporate principles of basic and clinical science. Examine writing with a focus on grantsmanship and protocol development.

PGS 383W Biopharmaceutical Analysis 3 Hours
Analytical methods for the isolation and identification of drugs and their metabolites, specific genes, and proteins in biological fluids.

PGS 384G Pharmacological Mechanisms of Addiction 3 Hours
Overview of neurobiological and pharmacological mechanisms of addiction, with in-depth discussion of recent literature in the field of addiction and animal models of addiction

PGS 384K Fundamentals of Toxicology 3 Hours
An organ system approach to advanced topics in general toxicology.

PGS 384L Biochemical and Molecular Toxicology 3 Hours
Discussion of mechanisms of selected drugs and toxicants.

PGS 384N Health Behavior Theory and Medication Use Process 3 Hours
In-depth analysis of the social and behavioral issues that affect medication use, using the content, theories, and methodologies associated with patient compliance research.

PGS 384S Introduction to Epidemiology 3 Hours
Principles of epidemiology; descriptive analytic, and clinical epidemiology; epidemiologic perspective for health care management; epidemiology and the public policy process; pharmacoepidemiology.

PGS 384T Advanced Epidemiology 3 Hours
Review of major research methods and current issues within drug epidemiology. Emphasis on application of methods by reviewing historical and contemporary literature/examples. Areas presented include: how to read, interpret, design, conduct, review, critique and evaluate pharmacoepidemiology studies.

PGS 184U Biopharmaceutical Analysis Laboratory 1 Hour
Analytical methods for the isolation and identification of drugs and their metabolites, specific genes, and proteins in biological fluids.

PGS 185D Responsible Conduct of Science 1 Hour
Ethical considerations in the conduct of science, including issues of animal welfare and/or human subjects research, data analysis, fraud, publications, misconduct, intellectual property, grants, peer review, and mentor responsibility.

PGS 185G Grant Writing for Pharmacology and Toxicology 1 Hour
Subjects include federal and nonfederal grants, specific aims, preliminary data, hypothesis testing, experimental design, peer review, responding to critiques, biosketch, and budgeting.

PGS 185J, 285J, 385J Advanced Pharmacotherapy Laboratory Research 1-3 Hours

PGS 385L Clinical Pharmacokinetics 3 Hours
In-depth analysis of pharmacotherapeutic regimens, using complex mathematical models.

PGS 385M Advanced Pharmacokinetics and Pharmacodynamics 3 Hours
Continuation of Pharmacy Graduate Studies 385L. Advanced pharmacokinetic and pharmacodynamic concepts and their application.

PGS 185N Translational Science PhD Seminar 1 Hour
Explore the scientific and operational principles underlying each step of the translational process, with an emphasis on multi-disciplinary, collaborative research and methods to move discovery more efficiently and effectively into application.

PGS 185W, 285W, 385W Advanced Topics in Pharmacotherapy 1-3 Hours

PGS 386C, 486C Cellular and Systems Physiology I 3-4 Hours
Basic principles of human physiology and anatomy in relation to drug action. Includes cellular and subcellular physiology, membrane transport, electrophysiology, synaptic transmission, and autonomic, neurological, and cardiovascular physiology and anatomy.

PGS 386D, 486D Cellular and Systems Physiology II 3-4 Hours
Principles of cellular and systems physiology. Subjects include immunology, kidney function, respiration, acid-base balance, blood and hematopoiesis, general endocrinology, neuroendocrinology, and reproduction.

PGS 186J, 286J, 386J Advanced Medicinal Chemistry: Laboratory Research 1-3 Hours
Modern laboratory techniques used in medicinal and natural products chemistry.

PGS 386M Pharmaceutical Industry and Marketing 3 Hours
Subjects include the structure, size, and regulation of the pharmaceutical industry, including good manufacturing practices; drug development, pricing, marketing, and channels of distribution; and issues that impact the drug development industry, including generic drug competition, patent life, active ingredient importation and finished drug product importation, drug counterfeiting and safety concerns, direct-to-consumer advertising, and the drug approval process.

PGS 186N, 286N, 386N, 486N Topics in Pharmacy 1-4 Hours
Current issues in translational science.

PGS 387G Manuscripts in Pharmaceutical Science 3 Hours
Explore skills essential for scientific leaders including scientific reviewing, reasoning, and writing, and their application to critically reviewing and communicating research plans and data.

PGS 387Q, 487Q Communication Skills for Scientists 3-4 Hours
Designed to enhance written and oral communication skills through lectures and practice. Covers grant writing, journal paper writing, poster presentation writing, and delivery.

PGS 388C Introductory Bioorganic Chemistry 3 Hours
Survey of enzyme-catalyzed reactions, with emphasis on mechanism, experimental design, and applications in natural products biosynthesis.

PGS 188G Dialogue Across Difference 1 Hour
Develop framework, terminology, and critical thinking and empathy tools for engaging in productive conversations around difficult topics. Explore both differences and commonalities across and within social identities, dialogue about issues pertaining to systems of oppression and enhance intercultural competencies. Examine the meaning of social identities and how they intersect, influence and/or are influenced by others.

PGS 188J, 288J, 388J Advanced Pharmacology: Laboratory Research 1-3 Hours

PGS 188K, 288K, 388K Topics in Advanced Pharmacology 1-3 Hours

PGS 288M Fundamentals of Fluorescence Microscopy 2 Hours
Explores optics, image formation, functioning of epifluorescent and confocal microscopes, detector technology (cameras and photomultiplier tubes), immunofluorescence techniques, image analyses, and image presentation for publication. Study of the technology and science behind widely-used high-end microscope systems.

PGS 389C Pharmacy Association Management 3 Hours
An introduction to the principles involved in managing pharmacy associations.

PGS 389J Advanced Pharmacotherapeutics of Cardiovascular Disorders 3 Hours
Designed to provide the student with a sound knowledge and comprehension of contemporary pharmacotherapeutic regimens used in treating cardiovascular diseases.

PGS 389M Fundamentals of Health Innovations 3 Hours
Explore foundational innovation and entrepreneurship concepts related to the process of developing novel drug therapies, medical devices, diagnostics, and digital health products and services.

PGS 389P Advanced Pharmacotherapeutics of Infectious Diseases 3 Hours
Designed to provide the student with a sound knowledge and comprehension of contemporary therapeutic principles used in treating infectious diseases.

PGS 189Q Seminar in Alcohol Studies 1 Hour
Presentations and discussion of current research topics in alcohol studies.

PGS 190G, 290G, 390G Topics in Advanced Pharmacotherapeutics of Human Diseases and Illnesses 1-3 Hours
A comprehensive analysis of disease processes and a determination of appropriate therapeutic interventions for the treatment of those diseases.

PGS 190H Advanced Pharmaceutics Research Conference 1 Hour

PGS 390J Data Analysis in Health Care 3 Hours
Statistical analysis of research data using the computer and various statistical software programs.

PGS 390K Experimental Design and Research Methodology in Health Care 3 Hours
Principles and procedures of experimental, quasi-experimental, and non-experimental research designs; includes reliability, validity, data collection methods, qualitative study designs, and survey methodologies.

PGS 190R, 290R, 390R Topics in Pharmacotherapy: Special Problems 1-3 Hours
Individual supervision of research problems in the clinical pharmacy sciences, including pharmacokinetics, pharmacodynamics, efficacy, safety, and pharmaceutical care.

PGS 390U Advanced Research Methods in Health Care 3 Hours
Advanced methodologies used in pharmacy administration research; designed to build upon the skills covered in Pharmacy 390K. Explores data management issues and statistical procedures, with emphasis on the application of research methodology concepts and principles.

PGS 291E Advanced Hematology and Oncology Seminar I 2 Hours
In-depth discussion of the contemporary pharmacotherapy and patient care relating to hematology, oncology, and bone marrow transplantation.

PGS 291F Advanced Hematology and Oncology Seminar II 2 Hours
In-depth discussion of the contemporary pharmacotherapy and patient care relating to hematology, oncology, and bone marrow transplantation.

PGS 191H Advanced Health Outcomes and Pharmacy Practice Research Conference 1 Hour

PGS 292E Clinical Research Methods I 2 Hours
Defining a research question, general study design issues, cross-sectional and case-control studies, and diagnostic test evaluation.

PGS 292F Clinical Research Methods II 2 Hours
Prospective observational studies; randomized controlled trials, nonrandomized intervention studies; meta-analysis; and data synthesis, evaluation, and application.

PGS 192Q Interdisciplinary Collaboration and Career Development 1 Hour

An overview of pharmacy and its primary disciplines of pharmaceuticals, medicinal chemistry, pharmacy administration and practice, pharmacotherapy, and pharmacology/toxicology.

PGS 092T Joint PhD Program with Partner Institutions 0 Hours
Translational science study at partner institutions.

PGS 393Q Health-Related Quality of Life 3 Hours
Terms, concepts, procedures, methods, problems, and strengths associated with health-related quality of life (HRQOL) research.

PGS 393T Pharmacoeconomics 3 Hours
Terms, concepts, procedures, methods, problems, and strengths associated with pharmacoeconomics.

PGS 193U, 293U, 393U, 693U, 993U Pharmacotherapy Master's Mentorship 1,2,3,6,9 Hours
Experience in pharmacy practice, research, and/or administration.

PGS 194I, 294I, 394I, 494I, 594I, 694I, 794I, 894I, 994I Internship in Pharmaceutical Sciences 1-9 Hours
Work in a professional environment and apply research, analysis, communication, and other academic skills to practical work. Experience may be on- or off-campus, paid or unpaid, and may include work with public or private corporations, nonprofit agencies, government offices, or academic laboratories. Internship to be arranged by the student and approved by their supervising professor.

PGS 194Q Professional Development for Pharmaceutical Scientists 1 Hour
Explore professional development skills (e.g., creating an individual development plan, understanding and capitalizing on strengths, curriculum vitae and resume writing, best practices in networking) and career pathways available to graduate students receiving advanced degrees in the pharmaceutical sciences.

PGS 195H Advanced Pharmacotherapy Research Conference 1 Hour

PGS 195S Environmental and Molecular Mechanisms of Health and Disease 1 Hour
Present and discuss current research topics in environmental and molecular mechanisms of health and disease.

PGS 196H Advanced Medicinal Chemistry Research Conference 1 Hour

PGS 396M Medicinal Chemistry: General Principles, Pharmacological Classification, and Mechanism of Action 3 Hours
Introduction to medicinal chemistry, covering drug classes according to their pharmacological classification, structural class, and mechanism of action.

PGS 196S Seminar in Pharmacy 1 Hour

PGS 196T Seminar in Toxicology 1 Hour

Presentations and discussion of current research topics in toxicology.

PGS 097 Fundamentals for Teaching Assistants 0 Hours

Skills, behaviours, and strategies for effective college teaching, with emphasis on pharmacy-related courses.

PGS 197H Advanced Pharmacology Research Conference 1 Hour

PGS 397M Drug Design and Synthetic Strategy 3 Hours

A multiperspective approach to modern concepts and drug design and synthetic strategy.

PGS 197S Seminar in Pharmacotherapy: Advanced Topics 1 Hour

PGS 698 Thesis 6 Hours

PGS 398T College Teaching Methodology 3 Hours

Interdisciplinary course intended to provide a foundation of theoretical and practical knowledge about teaching at the post-secondary level.

Instructional methods; instructional design; practice teaching; teaching philosophy; instructional technology; assessment of learning; class discussions; individual consultations.

PGS 399W, 499W, 599W, 699W, 799W, 899W, 999W Dissertation 3-9 Hours