

## Schedule of Courses

### Graduate Program in Pharmaceutical Sciences

Listed below are the courses offered by the Graduate Program in Pharmaceutical Sciences. Additional required and elective courses have been arranged through the Departments of Chemistry, Geochemistry, and Mathematics of TTU, and through the Departments of Physiology and Pharmacology of TTUHSC.

#### *Core Curriculum*

**GPSC 5101** Topics in Pharmaceutical Sciences. (1:1:0) Special topics in pharmaceutical sciences that are not normally included in other classes. May be repeated for credit with change in content.

**GPSC 5201** Topics in Pharmaceutical Sciences. (2:2:0) Special topics in pharmaceutical sciences that are not normally included in other classes. May be repeated for credit with change in content.

**GPSC 5210 Graduate Pharmaceutics Pt-1** (2:2:0). Physicochemical principles for the design and development of pharmaceutical dosage forms. Advanced instruction in solution, suspension, and semisolid dosage forms.

**GPSC 5211 Graduate Pharmaceutics Pt-2** (2:2:0). Physicochemical principles for the design and development of pharmaceutical dosage forms. Advanced instruction in solution, suspension, and semisolid dosage forms.

**GPSC 5301** Topics in Pharmaceutical Sciences. (3:3:0) Special topics in pharmaceutical sciences that are not normally included in other classes. May be repeated for credit with change in content.

**GPSC 5304 Principles of Drug Action.** (3:3:0) Principles that govern drug action within the body (pharmacodynamics) as well as drug absorption, distribution, metabolism, and excretion (pharmacokinetics).

**GPSC 5307** Pharmaceutical Sciences Research Methods. (3:0:3) A laboratory course designed to provide an overview of current research methods in pharmaceutical sciences under direct guidance of a faculty member.

**GPSC 5310** Drug Design and Discovery. (3:3:0) Prerequisite: Principles of Drug Action. Overview of the new methods for quantitative SAR, computer-aided drug design, mass screening and combinatorial chemistry.

**GPSC 5320** Drug Metabolism. (3:3:0) Analysis of the primary metabolic enzymatic systems that are involved in the clearance of drugs from the body and the mechanism that regulate their activity.

**GPSC 5325 Medicinal Chemistry** (3:3:0) A comprehensive study of the chemistry of drug molecules and their interactions, to aid in the understanding of concepts such as drug discovery and design.

**GPSC 5330** Pharmacokinetics. (3:3:0) A quantitative treatment at the graduate level of the dynamics of drug disposition in the body and the rational design of drug dosage regimens.

**GPSC 5335 Physiology Based Pharmacology Pt-1 (2:2:0).** Principles of cellular and organ physiology. Basics of pathophysiology of diseases. Major classes of drugs and their mechanisms of action, adverse effects, and clinical use.

**GPSC 5336 Physiology Based Pharmacology Pt-2 (2:2:0).** Principles of cellular and organ physiology. Basics of pathophysiology of diseases. Major classes of drugs and their mechanisms of action, adverse effects, and clinical use.

**GPSC 5340** Molecular Drug Action. (3:3:0) Analysis of drug action at the molecular level, including molecular biology and signal transduction.

**GPSC 5350** Advanced Pharmaceutics. (3:3:0) Prerequisite: Drug Delivery Systems 3 or equivalent. Quantitative treatment of reactions of pharmaceutical interest. Drug decomposition, approaches to stabilization and preservation, accelerated stability analysis, complexation and micromeritics.

**GPSC 5356** Advanced Principles of Disease. (3:3:0) Pathophysiological mechanisms at the molecular and cellular level. Lecture and discussion will cover the etiology, pathogenesis, functional changes and clinical significance of general diseases.

**GPSC 5370** Biotechnology. (3:3:0) An introduction to the area of molecular biology, genomics and protein chemistry.

**GPSC 5380** Special Topics in Drug Design – Immunopharmacology. (3:3:0) Principles of disease treatment with focus on the immunological system and new advances in immunotherapy.

***GPSC 5390 Pharmaceutical Science Research Design and Analysis.*** (3:3:0) Overview of experimental design implementation and data analysis, including biostatistics for pharmaceutical science investigations.

**GPSC 5455** Graduate Pharmaceutics (4:4:0) Physicochemical principles for the design and development of pharmaceutical dosage forms. Advanced instruction in solution, suspension and semisolid dosage forms.

***GPSC 5610 General Biochemistry.*** (6:6:0). Human life processes at the molecular level with emphasis on biochemical homeostasis and control mechanisms.

**GPSC 5620** Physiology Based Pharmacology (6:6:0). Principles of cellular and organ physiology. Basic of pathophysiology of diseases. Major classes of drugs and their mechanisms of action, adverse effects, and clinical use.

**GPSC 6000** Masters Thesis. (V1-6).

**GPSC 7000** Pharmaceutical Sciences Research. (V1-12).

**GPSC 7101** Pharmaceutical Science Seminar (1:0:0) Weekly seminar series designed to provide training in research data presentation and analysis.

**GPSC 8000** Doctoral Dissertation. (V1-12)

***GSBS 5101 Responsible Conduct of Research*** (1:1:0)