The Department of Pharmaceutical Sciences, along with the Department of Pharmacy Practice, offers courses leading to the Doctor of Pharmacy Degree. The Doctor of Pharmacy (Pharm.D.) is a six-year program requiring two years of study at the pre-professional (pre-pharmacy) level and four years of study at the professional level. Courses offered through this department include the following disciplines: biochemistry in human diseases, pharmaceutics, pharmacokinetics, and integrated courses including pharmaceutical/medicinal chemistry, pathophysiology, and pharmacology.

The Department of Pharmaceutical Sciences also offers courses leading to the Doctor of Philosophy (Ph.D.) degree and a contingent or default Master of Science (M.S.) degree in Pharmaceutical Sciences. Students who are interested in pursuing a graduate degree in Pharmaceutical Sciences should consult the Graduate School Bulletin of Texas Southern University for further information or visit the website (www.tsu.edu).

Members of the faculty in the Department of Pharmaceutical Sciences are housed in Gray Hall with the Department Office located in Gray Hall Room 124. The Department supports the primary mission of the College of Pharmacy and Health Sciences to produce quality health care professionals, particularly minorities who are competent in health care delivery including the provision of patient-centered care and other health care services and programs.

Since the Department offers courses leading to the entry-level Pharm.D. with the Department of Pharmacy Practice (described in the next section), students are referred to the end of the next section for a summary of requirements for the entry-level Pharm.D. degree and the sequence in which required courses should be taken. Courses offered through the Department of Pharmaceutical Sciences are described below.

Students should refer to admission policies, formative, summative, comprehensive and other examination and important information regarding the completion of the entry-level Pharm.D. under the College of Pharmacy and Health Sciences introductory section of this document.
LISTING OF FACULTY IN THE DEPARTMENT

Akpaffiong, Macaulay J.
Professor
Pharmacology
B.S., Texas Southern University
M.Sc., Ph.D., University of Bath
Pharm.D., University of Southern California

Bates, Theodore R.
Professor
Pharmacokinetics
B.S., Ph.D., Columbia University

Bell, Edward C.
Assistant Professor
Pharmaceutics
B.S., Tougaloo College
Ph.D., Auburn University

Enigbokan, Mofolorunso A.
Associate Professor
Pharmacology
B.S., M.S., Texas Southern University
Ph.D., Howard University

Eugere, Edward J.
Professor
Pharmacology
B.S., Xavier University
M.S., Wayne State University
Ph.D., University of Connecticut

Felder, Tyrone B.
Associate Professor
Pharmaceutics
B.S., Florida A & M University
Ph.D., University of Kentucky

Guilford, James
Professor
Pharmaceutical Chemistry
B.S., St. John's University
M.S., Ph.D., University of Michigan

Hayes, Barbara E.
Professor
Pharmacology
B.S., Texas Southern University
M.S., Purdue University
Ph.D., University of Houston

Hickman, Eugene, Sr.
Professor (Retired)
Pharmaceutics
B.S., Texas Southern University
M.S., University of Texas at Austin
Ph.D., University of Iowa

Leonard, Golda A.
Associate Professor
Pharmacology
B.S., Texas Woman’s University
Ph.D., University of Michigan

Liang, Dong
Associate Professor
Pharmaceutics
B.S., M.S., Zhejiang Medical University
Ph.D., University of Houston

Mehta, Chander S.
Professor
Pharmacology
B.S., University of Bombay
B.Pharm., Ph.D., Washington State University

Milton, Shirlette Glover
Associate Professor
Pharmaceutical Chemistry
B.S., Texas Southern University
M.S., University of Texas at Austin
Ph.D., University of Texas Health Science Center at Houston

Olaleye, Omonike
Assistant Professor
Pharmacology
B.S., University of St. Thomas
Ph.D., Johns Hopkins University

Ohia, Sunny E.
Professor
Pharmacology
B.S., M.S., University of Ibadan
Ph.D., University of Glasgow

Oyekan, Adebayo O.
Professor
Pharmacology
D.V.M., University of Nigeria
Ph.D., University of London
Shivachar, Amruthesh  
Associate Professor  
Pharmaceutical Chemistry  
B.Sc., Sarada Vilas Science College  
M.Sc., Ph.D., University of Mysore

Wells, Patrick  
Dean Emeritus  
B.S., Texas Southern University  
M.S., Ph.D., University of Nebraska at Lincoln

Xie, Huan  
Assistant Professor  
Pharmaceutics  
B.S., Fudan University  
Ph.D., North Carolina State University
PHARMACEUTICAL SCIENCES COURSES

PHAR 111 Pharmacy Orientation (1)
Survey of the pharmacy profession with emphasis on history, ethics, careers, and professional organizations. One hour of lecture per week.

PHAR 112 Pharmacy Orientation (1)
Survey of the pharmacy profession with emphasis on history, ethics, careers, and professional organizations. One hour of lecture per week.

PHAR 211 Pharmacy Applications (1)
Study of the fundamental principles underlying the science and practice of pharmacy in the United States. One hour of lecture per week. Prerequisites: PHAR 111, PHAR 112 and successful completion of freshman biology and chemistry courses.

PHAR 212 Medical Terminology (1)
Programmed course of study building medical words from Greek and Latin prefixes, suffixes, word roots, and combining forms. Professional students are required to complete this course. One hour of lecture per week.

PHAR 438 Principles of Drug Action I (3)
An interdisciplinary course incorporating pathophysiology, pharmacology, and pharmaceutical/medicinal chemistry concepts essential to understanding the basis of drug use in diseases of the nervous, cardiovascular, and genitourinary systems. Core concepts in pharmacology, mechanism of drug action in various categories, and the chemical basis of pharmacology will be presented. Prerequisite: First professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 418.

PHAR 418 Principles of Drug Action I - Laboratory/Recitation (1)
Demonstrations, case studies, recitation, presentations, and small group discussions to accompany PHAR 438. Prerequisite: First professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 438.

PHAR 439 Principles of Drug Action II (3)
Continuation of PHAR 438. Interdisciplinary course incorporating pathophysiology, pharmacology, and pharmaceutical/medicinal chemistry concepts essential to understanding the basis of drug use in diseases of the immune, respiratory, and gastrointestinal systems. Mechanism of drug action in various categories and the chemical basis of pharmacology will be presented. Prerequisites: PHAR 438 and PHAR 418. Corequisite: Successful completion of or concurrent enrollment in PHAR 419.
PHAR 419  **Principles of Drug Action II - Laboratory/Recitation**  (1)
Demonstrations, case studies, recitation, presentations, and small group discussions to accompany PHAR 439. Prerequisites: PHAR 438 and PHAR 418. Corequisite: Successful completion of or concurrent enrollment in PHAR 439.

PHAR 433  **Pharmaceutics I – Pharmacy Calculations**  (3)
Problems, calculations, and processes involving weights and measures, specific gravity, percentage strength, solutions, and allegation related to the practice of pharmacy. Prerequisite: First professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 413.

PHAR 413  **Pharmaceutics I Laboratory**  (1)
Dosage form preparation calculations, techniques, and principles used in the extemporaneous compounding of medications, including liquid, solid, semi-solid, and topical preparations. Prerequisite: First professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 433.

PHAR 434  **Pharmaceutics II – Dosage Forms**  (3)
Physiochemical and biological principles of dosage forms. Principles of drug delivery via dosage forms and dosage form stability and degradation. Prerequisites: PHAR 433 and PHAR 413. Corequisite: Successful completion of or concurrent enrollment in PHAR 414.

PHAR 414  **Pharmaceutics II – Laboratory**  (1)
Continuation of PHAR 413. Dosage form preparations and compounding techniques used for dispersed systems, semi-solids, suppositories, and solid dosages. Sterile admixture techniques including stability and sterility testing and dating, clean room requirements, and infusion devices will also be covered. Prerequisites: PHAR 433 and PHAR 413. Corequisite: Successful completion of or concurrent enrollment in PHAR 434.

*PAS 517  **Pharmacology Toxicology I Laboratory**  (1)
Demonstrations, case studies, recitation, presentations, and small group discussions to accompany PAS 537. Three hours of laboratory per week. Prerequisite/Corequisite: Successful completion of or concurrent enrollment in PAS 537.

*PAS 535  **Pathophysiology III – Alterations**  (2)
Pathophysiologic alterations of organs and organ systems, including the pulmonary, digestive, musculoskeletal systems and skin. Two hours of lecture per week. Prerequisite: PAS 436.

*PAS 537  **Pharmacology Toxicology I**  (3)
Pharmacology and toxicology of drugs used to treat disorders of the gastrointestinal, respiratory, and cardiovascular systems. Three hours of lecture per week. Prerequisite: Second professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PAS 517 and PAS 535.

**PAS 539**  
Chemotherapeutics  
(3)

In-depth study of the principles of chemotherapy and a thorough discussion of agents used to manage infectious and neoplastic diseases. Three hours of lecture per week. Prerequisites: PAS 517, PAS 535, PAS 537, and second professional year standing in the professional pharmacy program.

**PAS 547**  
Pharmacology Toxicology II  
(4)

Elucidates the pharmacology and toxicology of drugs used to treat disorders of the central nervous system, musculoskeletal system, and renal system. Three hours of lecture and three hours of laboratory per week. Prerequisites: PAS 517 and PAS 537.

**PHAR 513**  
Pharmaceutics III Laboratory  
(1)

Demonstrations, experiments, simulations, case studies, recitation, presentations, and small group discussions to accompany PHAR 533. Three hours of laboratory per week. Prerequisite/Corequisite: Successful completion of or concurrent enrollment in PHAR 533, and second professional year standing in the professional pharmacy program.

**PHAR 533**  
Pharmaceutics III – Dosage Form II  
(3)

Biopharmaceutics and applications of physiochemical principles to drugs, dosage forms, and drug action. Three hours of lecture per week. Prerequisites: PHAR 414 and PHAR 434. Corequisite: Successful completion of or concurrent enrollment in PHAR 513, and second professional year standing in the professional pharmacy program.

**PHAR 539**  
Pharmaceutics III - Pharmacokinetics  
(3)

Basic principles of in vivo drug kinetics (linear and nonlinear), principles of bioavailability/bioequivalence, and factors that affect bioavailability of a drug such as physio-chemical properties, dosage formulations, and physiological factors. Prerequisites: PHAR 434, PHAR 414, and completion of all 400-level courses in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 519.

**PHAR 519**  
Pharmaceutics III – Recitation  
(1)

Examples and problems utilizing pharmacokinetic principles as applied to drug therapy. Prerequisites: PHAR 434, PHAR 414, and completion of all 400-level courses in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 539.

**PHAR 538**  
Principles of Drug Action III  
(3)
Continuation of PHAR 439. Interdisciplinary course incorporating pathophysiology, pharmacology, and pharmaceutical/medicinal chemistry concepts essential to understanding the basis of drug use in diseases of the eye, ear, nose, and throat, integumentary system, and endocrine system. Prerequisites: PHAR 439, PHAR 419, and completion of all 400-level courses in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 518.

**PHAR 518**  
Principles of Drug Action III – Laboratory/Recitation (1)

Demonstrations, case studies, recitation, presentations, and small group discussions to accompany PHAR 538. Prerequisites: PHAR 439, PHAR 419, and completion of all 400-level courses in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 538.

**PHAR 601**  
Special Problems (0-8)

Methods in pharmaceutical sciences and clinical research; application of hypothesis formulation, literature evaluation, experimental design, clinical skills, data acquisition/analysis, and formal presentations. Variable number of hours of lecture per week. Students may enroll in up to a total of 8 semester credit hours of Special Problems while in the professional pharmacy program. Prerequisite: Special permission by the Department.

**PHAR 614**  
Pharmaceutics V Laboratory (1)

Demonstrations, case studies, recitation, presentations, computer simulations, and small group discussions to accompany PHAR 634. Three hours of laboratory per week. Prerequisite/Corequisite: Successful completion of or concurrent enrollment in PHAR 634, and third professional year standing in the professional pharmacy program.

**PHAR 616**  
Pharmaceutics VI Laboratory (1)

Demonstrations, case studies, recitation, presentations, and small group discussions to accompany PHAR 636. Three hours of laboratory per week. Prerequisite/Corequisite: Successful completion of or concurrent enrollment in PHAR 636, and third professional year standing in the professional pharmacy program.

**PHAR 634**  
Pharmaceutics V – Basic Pharmacokinetics (3)

Study of factors affecting bioavailability and time course of action of drugs in humans. Three hours of lecture per week. Prerequisites: PHAR 534, PHAR 514, and third professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 614.

**PHAR 636**  
Pharmaceutics VI – Applied Pharmacokinetics (3)

Application of pharmacokinetic principles in selection, dosing, dosage form adjustments and evaluation of drug therapy for patients in an institutional setting. Three hours of lecture per week. Prerequisites: PHAR 634, PHAR 614, and third professional year standing in the professional pharmacy program. Corequisite: Successful completion of or concurrent enrollment in PHAR 616.
PHCH 441  Biochemistry in Human Disease  (4)

Chemistry of biomacromolecules (e.g., proteins, lipids, carbohydrates, and DNA). Enzymology, metabolic pathways to energy utilization, nucleic acid metabolism, and recombinant DNA technology. Prerequisite: First professional year standing in the professional pharmacy program.

*PHCH 531  Pharmaceutical Chemistry III  (3)

Principles of medicinal chemistry and drug metabolism pathways. Application of chemical principles to specific drug categories. Three hours of lecture per week. Prerequisite: Successful completion of PHCH 411, PHCH 412, PHCH 431, and PHCH 432. Corequisite: Successful completion of or concurrent enrollment in PAS 537.

*PHCH 532  Pharmaceutical Chemistry IV  (3)

Application of chemical principles to the central nervous system; non-steroidal, anti-inflammatory, chemotherapeutic, diagnostic, radio-pharmaceutical, and miscellaneous organic and inorganic medicinal agents. Three hours of lecture per week. Prerequisite: PHCH 531.

* Course (500-level) will be phased out through implementation of the new Pharm.D. curriculum. Courses will not be offered after August, 2011.

** Course (600-level) will be phased out through implementation of the new Pharm.D. curriculum. Courses will not be offered after August, 2012.