A brief Course Description			
Course Name	**Integrated Patient Care Laboratory (1)**		
Course Code	**CPP 341**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	2		
Contact Hours	**Lecture: 1**	**Lab/Tutorial:3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 221M**		
Co-Requests:	**PHS 321**		
Course Objectives:	• Apply principles and concepts related to pharmaceutical science to the care of the patients. • Interpret prescriptions/medication orders with accuracy. • Perform physical assessment including: (cardiac, respiratory, endocrine and neurologic systems). • Identify, solve and prevent medication related problems and medication errors. • Interpret laboratory values and use the information in caring for a patient. • Preparation of different pharmaceutical dosage forms.		

A brief Course Description			
Course Name	**Pathophysiology (2)**		
Course Code	**MBS 253M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**MBS 252M, MBS 141**		
Co-Requests:	**None**		
Course Objectives:	Describe the major pathophysiologic mechanisms behind common human diseases, normal and abnormal laboratory values, and the consequences of those changes on bodily tissues for common diseases of the: A. Cardiovascular system B. Respiratory system C. Digestive and urinary systems D. Neurologic system (acute and chronic disorders) E. Visual and auditory systems F. Endocrine system G. Reproductive systems		

A brief Course Description			
Course Name	**Basic Principles of Pharmaceutical Sciences**		
Course Code	**PHS 301**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 202**		
Co-Requests:	**PHS 321**		
Course Objectives:	A. Rationalize how functional groups dictate the physiochemical properties of drug molecules, including chemical stability, solubility, polarity. B. Rationalize how stereochemical principles apply to understanding drug-macromolecular (protein) interactions. C. Explain the importance of minimal structural features that dictate drug activity (pharmacophore). D. Based on the chemical structure of the molecule (i.e., the functional groups present) predict logical pathways for phase-1 and phase-2 metabolism. E. Explain how changes in metabolic pathways (e.g., induction, inhibition) can		

	impact the therapeutic activity, toxicity, and/or drug interactions. F. Explain (at an introductory level) how genetic differences in drug metabolism result in predictable differences in drug response. G. Explain how basic receptor theory allows a rationalization of drug efficacy, including agonism and antagonism. H. Illustrate how drug efficacy can be expressed quantitatively using dose response curves). I. Illustrate how basic biopharmaceutics principles impact the development of drug productions (route of administration, frequency of administration, etc.). J. Explain how radiopharmaceuticals serve as tracer tools in the biopharmaceutics of drug development.

A brief Course Description			
Course Name	**Pharmaceutical Biochemistry**		
Course Code	**PHS 318**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 202**		
Co-Requests:	**None**		
Course Objectives:	A. Articulate how fundamental biochemistry relates to wellness and disease processes and it's direct relationship to understanding pharmaceutical principles. B. Describe the biosynthetic processes leading to generation of proteins, nucleic acids, and carbohydrates. C. Describe the regulatory processes underlying the biosynthesis of macromolecules. D. Describe the function of protein, nucleic acid, carbohydrate, and lipid macromolecules in cellular systems. E. Demonstrate a fundamental understanding of enzyme kinetics as it relates to		

	efficiency (turnover) and inhibition. F. Describe intermediary metabolism in terms of energy generation and maintaining cellular homeostasis. G. Describe the biosynthesis of lipids (including fatty acids, prostaglandins, and sterols) and their role in cellular structures and maintaining homeostasis. H. Describe the role of biotechnology in producing biochemicals as therapeutic agents and diagnostics.

A brief Course Description			
Course Name	**Principles of Pharmaceutics (Dosage Forms and Stability)**		
Course Code	**PHS 321**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	**PHS 301**		
Course Objectives:	**At the end of the course students should be able to:** **A. Articulate the drug development process and the necessary pharmaceutics components of that process.** **B. Articulate the most common dosage forms and their routes of administration.**		

	C. Describe how bioavailability and bioequivalence are used to assess formulations. D. Describe the requirements to meet GMP certification. E. Describe the uses, formulation, and assessment of major classifications of dosage form)powders, capsules, tablets, solutions, polyphasic systems, and emulstons. F. Articulate the role of topical, mucosal and controlled release products providing controlled drug delivery. G. Demonstrate an understanding of the basic principles associated with pharmaceutical (extemporaneous) compounding.

A brief Course Description			
Course Name	**Basic Principles in Pharmacology**		
Course Code	**PHS 331**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 5th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	MBS 253M		
Course Objectives:	A. Define and describe basic terms and concepts of pharmacology B. Explain the basic principles of pharmacokinetics and pharmacodynamics detailing drug-receptor interactions C. Analyze the pathophysiologic bases that relate to pharmacological mechanisms D. Outline the roles of neurotransmitters of the peripheral and central nervous systems and classify and describe the mechanisms of drugs acting on them E. Outline the roles of autacoids on inflammatory and pain processes and explain the mechanisms of action of drugs used in their treatments F. Outline the role of mediators in controlling the smooth muscle tone. G. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)		

A brief Course Description			
Course Name	**Professional Communication Skills**		
Course Code	**CPP 311M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	2		
Contact Hours	**Lecture: 2**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**CPP 211M**		
Co-Requests:	**None**		
Course Objectives:	A. Teach the student how to conduct patient interviews and counsel patients on medications. B. How to respond empathically to patient concerns how to discuss the emotional/ psychological aspects of illness that patients often experience and apply this understanding when communicating with patients. C. use communication techniques that facilitates a therapeutic relationship with patients. D. Reflect on one's communication abilities and identify how to improve. E. Briefly describe any plans for developing and improving the course that are being implemented.		

A brief Course Description			
Course Name	**Biopharmaceutics and Pharmacokinetics**		
Course Code	**CPP 312M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	4		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**HFSM 101-1 , PHS 221M, PHS 301 , PHS 321**		
Co-Requests:	**None**		
Course Objectives:	1. Describe the factors that influence the blood concentration of drugs with a relatively narrow therapeutic index. 2. Describe the effect of volume of distribution on drug concentration. 3. Determine the effect drug clearance has on steady state blood levels. 4. Describe the role of the liver and the kidney in drug elimination and how factors such as creatinine clearance may help predict renal drug elimination. 5. Read scientific monographs from different manufacturers describing their drug product ADME and using these data be able to pick the most appropriate generic equivalent product. 6. Describe the difference between peak and trough drug levels and how they contribute		

	to efficacy and toxicity. 7. Describe the data required for a particular drug and for a particular patient that would allow you to calculate appropriate loading doses, dosing intervals and dose levels in order to maintain suitable blood levels without causing toxicity. 8. Given appropriate blood level data be able to calculate the AUC and how this contributes to decisions regarding drug dosing.

A brief Course Description			
Course Name	**Principles of Pharmacy Regulations & Health Ethics**		
Course Code	**CPP 319**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**CPP 211M**		
Co-Requests:	**None**		
Course Objectives:	1. Understand the KSA legal system. 2. Describe the professional and ethical expectations of a pharmacist. 3. Discuss ethical issues related to the development, promotion, sales, and use of medications. 4. Demonstrate the ability to address common ethical dilemmas encountered in pharmacy practice and the provision of patient-centered care. 5. Discuss how to provide end-of-life care to a patient. 6. Discuss common issues encountered when working as a team member.		

A brief Course Description			
Course Name	**Integrated Pharmacotherapy (1)**		
Course Code	**CPP 322M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 331, PHS 301, MBS 253M , CPP 341**		
Co-Requests:	**CPP 342**		
Course Objectives:	1. Solve a problem or case by applying knowledge about the pharmacology and medicinal chemistry of the following drug classes: A. Diuretics B. B-lactams C. Vancomycin D. Cell Wall inhibitors 2. Recommend appropriate pharmacotherapy for patients with the following fluid and electrolyte disorders: A. Dehydration B. Fluid overload C. Hyponatremia and hypernatremia D. Hypokalemia and hyperkalemia		

	E. Hypocalcemia and hypercalcemia F. Other electrolyte disorders (phosphorus and magnesium) G. Acid-base disorders. 3. Recommend appropriate pharmacotherapy for patients with acute renal failure. 4. Recommend appropriate pharmacotherapy for patients with chronic renal failure. 5. Recommend appropriate management of patients with drug-induced kidney Disease. 6. Select the antibiotic(s) of choice for a patient with a common infection.

A brief Course Description			
Course Name	**Integrated Patient Care Laboratory (2)**		
Course Code	**CPP 342**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	2		
Contact Hours	**Lecture: 1**	**Lab/Tutorial:3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**CPP 341**		
Co-Requests:	**CPP 322M, CPP 312M**		
Course Objectives:	• Apply critical thinking skills. • Interpret common clinical findings from the patient interview, history, physical examination, and laboratory data that would be used for the diagnosis and management of medical conditions (fluids, electrolytes, acid/base disorders, acute/chronic renal disease) • Evaluate the appropriateness of patient-centered drug therapy regimens • Design and redesign an evidence-based pharmacotherapy plan that includes problem, goal, drug, dose, route, frequency, and monitoring for medical conditions (fluids, electrolytes, acid/base disorders, acute/chronic renal disease).		

	• Discuss factors that should be included in patient counseling for pharmacotherapy regimens. • Discuss and demonstrate the verbal and nonverbal communication strategies and skills that are used to effectively interaction with patients, caregivers, and healthcare professional while providing patient-centered care. • Discuss and utilize specific strategies to effectively communicate with patient who have low health literacy. • Assess and identify strategies to improve medication adherence.

A brief Course Description			
Course Name	**Principles of Natural Products & Evidence-Based Medicine**		
Course Code	**PHS 312**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**3rd Year/ 6th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 301**		
Co-Requests:	**None**		
Course Objectives:	1. Describe the role of natural products in complimentary/alternative care to patients. 2. Select literature resources that serve as a source when you need to make an evidence-based decision about the use of natural products. 3. Cite the botanical name, source, mechanism of action, common use, usual dose, contraindications, side effects, and route of administration of natural products frequently used in the Kingdom of Saudi Arabia. 4. Recommend appropriate use of natural products for the complaints/healthcare needs: A. Weight loss B. Gynecologic indications C. Urinary tract indications D. Cardiovascular disorders		

	E. CNS disorders/symptoms F. Digestive symptoms G. Respiratory disorders H. Rheumatic disorders/symptoms I. Diabetes