PHPT1105	Medical & Pharmaceutical Terminology

1 - Introduction to Medical and Parmaceutical Terminology
2 - What is Medical Terminology
3 - The Prefix
4 - The Suffix
5 - The Root
6 - Pronunciation
7 - Commonly used medical and pharmaceutical terms
8 - Directional terms
9 - Pharmaceutical abbreviations
10 - Medical abbreviations
11 - Patient profile

ISLM1101	Holy Quran(1)

ITCS1301	Computer Science (1)

1 - Computer definition and different computer types.
2 - Data representation.
3 - Introduction to Algorithms, problem-solving and software development methodology.
4 - Basic programming in C++, essential concepts, programming style, variables and data types, long, float, double, Boolean, character, strings, enumeration, I/O format,
5 - Logical expressions and control constructs: if-else, nested if, switch, arithmetic and assignment statements;
6 - Looping techniques, for, while, do-while, nested loop, functions, including parameter passing mechanisms, scope, and return values, pointers
7 - Introduction to structures and arrays.

PHPT1102	Cell Biology lab

1 - The compound light microscope
2 - The cell
3 - Histology (3 laboratories)
4 - The molecule of life (biochemistry)
5 - The cell transport mechanism
6 - Mitosis

PHPT1301 Cell Biology

1 - Cell theory, cell diversity, and microscopes.
2 - Chemical organization of cell(elements, ions, buffers, and water and proteins
3 - Carbohydrates, lipids, and nucleic acids
4 - DNA replication, two basic types of cells, and plasma membrane
5 - Nucleus, endoplasmic reticulum, Gologi apparatus, lysosomes.
6 - Microbodies, ribosomes, mitochondria, and centrioles.
7 - Cytoskeletons
8 - Midterm Exam
9 - Junctions between cells and unique features of plant cells
10 - Cell transport (passive and active transport)
11 - Cell cycle and its regulation
12 - Sexual reproduction and meiosis
13 - From gene to protein and mutations
14 - Cell signaling and cell death
15 - Final exam

PHCH2107 Organic Chemistry Lab.

1 - Introduction, Safety precautions and Laboratory Instructions
2 - techniques of purification and reflux concepts
3 - Synthesis of Aspirin
4 - Synthesis of Acetanilide
5 - Synthesis of Acetanilide
6 - Hydrolysis of amide and nitriles
7 - "Synthesis of Azo dye "Methyl Orange
8 - Isolation of Caffeine from tea leaves
9 - solubility tests
10 - systematic identification of organic compounds using all functional group tests
11 - application of unknown drugs identification

PHCH1303 Organic Chemistry(1)

1 - Week 1-2 (Introduction and Revision) • Definition of organic chemistry • Role of organic chemistry in different fields of life; (pharmacy, biochemistry, agriculture, industry, analysis, ...etc) • Periodic table and some important terms [electronic configuration, electronegativity, polarity, bond types ionic, covalent and metallic, sigma ? and pi ? bonds; [single, double and triple bonds], intermolecular forces ion dipole, hydrogen bonding, dipole-dipole and Van der Waals, hybridization and molecular geometry, nucleophile, electrophile, solubility solvation and solvolysis, fat soluble vitamins and water soluble vitamins • Oxidation and reduction in organic chemistry • An overview of organic reactions Substitution , Elimination, Addition and Rearrangement • Intermediates [carbocation, carbanion and free radical] • Representation of chemical structure • Functional groups • Isomerism • Acidity and basicity • Inductive and resonance mesomeric effects

2 - Week 3-4 (Alkanes and Cycloalkanes) • Physical properties • Nomenclature • Preparation (Corey-House coupling and Grignad reagent hydrolysis) • Stereochemistry (conformations of alkane eclipsed, staggered, gauch and twisted, boat and chair for cyclohexane , 1,3-diaxial interaction, cyclopropane angle strain and banana bond • Reactions (Halogenation via Free Radical Substitution)

3 - Week 5-6 (Alkenes, Dienes and Cycloalkenes) • Physical properties • Alkenes containing bio-compounds • Nomenclature • Preparation (dehydration of alcohols, dehydrohalogenation of alkyl halides) • Reactions (electrophilic addition; [Markovnikov and Anti Markovnikov rules), halogenation, hydration, hydroboration, oxymercuration, Hydroxylation syn and anti and Diels- Alder cycloaddition • Oxidative cleavage and reduction • Applied synthesis

4 - Week 7 (Alkynes) • Physical properties • Terminal, non terminal alkynes, alkyne acidity and acetylide anions • Alkynes containing bio-compounds • Nomenclature • Preparation (di-dehydrohalogenation of vicinal or geminal alkyl dihalides) • Reactions (oxidative cleavage, reduction, electrophilic addition HX and X2 alkylation of acetylide aninons and hydration • Applied synthesis

5 - Week 8 (Stereochemistry) • Definition • Importance of stereochemistry in pharmacy • Chirality for carbon and other carbon compounds • Optical activity (Levo and Dextroroatory features) • Diastereomers and Enantiomers • Meso compounds • Racemate (racemic mixture) • Configuration (R and S) • Threo and Erythro • Epimers and Anomers • Application Week 9 (Alkyl halides) • Physical properties • CFC and ozone layer • Alkyl halides containing bio-compounds • Nomenclature • Preparation (free radical halogenation of alkane and allylic halogenation of alkenes) • Reactions (Grignard Reagent preparation, Corey-House, Elimination E1 and E2, Nucleophilic Substitution SN1 and SN2 . 4 -

6 - Week 9 (Alkyl halides) Physical properties, CFC and ozone layer Alkyl halides containing bio-compounds, Nomenclature, Preparation (free radical halogenation of alkane and allylic halogenation of alkenes), Reactions (Grignard Reagent preparation, Corey-House, Elimination E1 and E2, Nucleophilic Substitution SN1 and SN2

7 - Week 10-11 (Alcohols and Thiols) • Physical properties • Alcohols or thiols containing bio-compounds • Nomenclature • Preparation (hydration of alkenes, oxymercuration, hydroboration, hydroxylation of alkyl halides, reduction of carbonyl compounds using different reducing agents LiAlH 4, NaBH4 and Grignard reagents). • Reactions (alkoxide formation and Williamson ether and thioether (sulfide) synthesis, dehydration, oxidation using different oxidizing agents PCC, KMnO4, CrO3 • Applied synthesis Week 12 (Ethers, Epoxides and Sulfides) • Physical properties • Chain ether, cyclic ether and crown ether • Ether, Epoxide or sulfide containing bio-compounds • Nomenclature • Preparation • Reactions (cleavage and ring opening) • Applied synthesis Week 13 (Nomenclature) This chapter includes the rules for naming organic compounds contain more than one function group such as (aldheydes, alcohols. Ketones, esters, amides, carboxylic acids, nitriles, …..etc

8 - Week 12 (Ethers, Epoxides and Sulfides); Physical properties, Chain ether, cyclic ether and crown ether, Ether, Epoxide or sulfide containing bio-compounds Nomenclature, Preparation Reactions (cleavage and ring opening) Applied synthesis

9 - Week 13 (Nomenclature), This chapter includes the rules for naming organic compounds contain more than one function group such as (aldheydes, alcohols. Ketones, esters, amides, carboxylic acids, nitriles, …..etc

PHCH1201 Analytical Chemistry 1

1 - Introduction to qualitative analysis: Methods, specification tests of precipitate or a gas, physical characters

2 - Identification tests of anions: Direct (acetate, flouride, borate, silicate, carbonate--) and indirect analysis (chloride, iodide, sulfate, thiosulfate, sulfite, sulfide, nitrate, nitrite, cyanide, phosphate, chromate, ---)

3 - Classification of cations into five groups: HCl-, H2S-, (NH4)2S-, (NH4)2CO3-, and soluble group. Identification tests per cation in each group and separation of precipitate mixtures

4 - Detailed explanation of selected identification tests per anion or cation: Balancing-, and type of reaction explanation, nomenclature of salts, ions and complexes

5 - Application of ions in pharmacy

6 - Concept of soda extraction

7 - Qualitative analysis of some ions in pharmacopiea: test of heavy metals, concept of limit test

PHCH2106 Analytical Chemistry lab.

1 - Introduction to methods of qualitative and quantitative assays

2 - Analysis of inorganic salt: Selected cations and anions

3 - Analysis of salt mixture

4 - Acid-base titration: aqueous and non aqueous media

5 - Redox titration

6 - Precipitation titration

7 - Complexometry

PHTC1201 Physical Pharmacy 1

1 - Introduction: dimensions and units, some elements of mathematics.

2 - Intermolecular forces and states of matter: binding forces between molecules, states of matter; the gaseous state, the liquid state, solid and crystalline state, polymorphism, amorphous solids, the liquid crystalline state, phase equilibria and phase rule

3 - Physical properties of drug molecules: dielectric constant, induced polarization, dipole moment, refractive index, molar refraction and optical rotation

4 - Solutions of nonelectrolytes: concentration expression, ideal and real solutions, colligative properties and molecular weight determination

5 - Solutions of electrolytes: properties of solution of electrolytes, Arrhenius theory of electrolytic dissociation, theory of strong electrolytes, coefficients for expressing colligative properties, Debye and Hückle theory

6 - Isotonic solutions: isotonic solutions and methods of adjusting tonicity

7 - Solubility and distribution phenomena: general principles, solvent-solute interactions, solubility of gases in liquids, solubility of liquids in liquids, solubility of solids in liquids, distribution of solutes between immiscible solvents

8 - Some solvents used in liquid dosage forms; ethanol, glycerin, propylene glycol, purified water, types of pharmaceutical water. Oral solutions, syrups, elixirs, aromatic waters, spirits, tinctures, extracts, liniments, and collodions

ISLM1201 Jurisprudence

ENGL1201 English Language (1)

1 - Upon completion of the course, students will be able to ask and answer questions about daily life activities by using correct linguistic forms. Also, they will be able to use new vocabulary and relate the spelling to the sounds of English which will help improve their pronunciation. Being provided with longer reading passages in a higher level, students will be able to deal with less controlled exercises that develop into freer speaking practice. As they are provided with regular recycling of grammar and vocabulary, students will be able to incorporate the integrated skill activities in both speaking and writing.

GEOL3203 Environmental Sciences

1 - Introduction to Environment and Ecology (1)

2 - Outline of earth envelops (2)

3 - Natural biogeochemical cycles in the environment (3)

4 - Environmental pollution (4)

5 - Human health and the environment (5)

6 - The environment of Palestine (6)

PHTC2106 Pharmaceutical Microbiology& Parasitology Lab

1 - Types of bacterial cell and methods of identification

2 - physiological functions and knowing of bacterial constituents

3 - gram staining of bacteria

4 - Determination of MIC for different antibiotics

5 - identification of defferent types of parasite and methods of its isolation

PHTC2305 Pharmaceutical microbiology & parasitology

1 - Covers all subjects related to bacterial cell morphology and its constituents with functions

2 - types of bacteria (Gram positive &gram negative)in addition to its clinical problems with treatment

PHCH2306 Organic Chemistry(2)

1 - Week 1 :- (Benzene and Aromaticity) • The main criteria for aromaticity • Heterocycles and aromaticity • Effect of aromaticity on polarity • Effect of aromaticity on acidity • Effect of aromaticity on basicity • Inductive and mesomeric effects • Aromaticity in drugs (Aromatic containing drugs

2 - Week 2:- (Reactions of benzene and aromatic compounds) • Electrophilic aromatic substitution • Nucleophilic aromatic substitution • Reactivity and Orientation • Oxidation of benzene • Reductions of benzene (Birch reduction) • Poly nuclear aromatic hydrocarbon synthesis (Naphthalene, Anthracene and Phenanthrene). • Drug synthesis including Electrophilic and nucleophilic aromatic substitution reactions

3 - Week 3-4:- (Aldehydes and Ketones) Nucleophilic Additions • Physical properties of aldheydes and ketones • Acidity of aldheydes and ketones (?-hydrogen acidity) • Preparation of aldheydes • Preparation of ketones • Feature of carbonyl group • Nucleophilic addition and Relative reactivity of aldheydes and ketones • Nucleophilic addition reactions a. With Water [Geminal diols)] b. With HCN [Cyanohydrins formation] c. With Grignard reagent[Alcohol formation] d. With Alcohol [Hemi- and Acetal formation] e. With Primary amines [Imine formation] f. With Secondary amines[Enamine formation] g. With Hydrazine in acidic media [Hydrazone formation] h. With Hydrazine in basic media ‘’ Wolff-Kishner reaction [Alkane formation] i. With Hydroxylamine [Oxime formation] j. With Semicarbazide [Semicarbazone formation] k. With hydrides [Alcohol formation] l. With Phosphorous “ Wittig Reaction” [alkene formation] m. With NaOH” Cannizzaro Reaction” [Disproportionation product] • Nucleophilic addition to ?,?-unsaturated carbonyl groups • Some biological Nucleophilic addition reactions • Drug synthesis including Nucleophilic addition reactions • Aldehydes and ketones containing drugs

4 - Week 5:- (Carbonyl condensation reactions) • ?-carbanions as nucleophiles • Self and mixed aldol condensation reactions • Intramolecular aldol condensation reactions • Self and mixed ester condensation [Claisen condensation] • Intramolecular Claisen condensations [Dieckmann Cyclization] • Biological carbonyl condensation • Drug synthesis including Nucleophilic addition reactions

5 - Week 6-7:- (Carboxylic acids and derivatives) • Physical properties of carboxylic acids • Substituent effects on acidity of carboxylic acids • Preparation of carboxylic acids a. Hydrolysis of nitriles b. Hydrolysis of esters c. Hydrolysis of amides d. Carboxylation of Grignard reagents e. Oxidation of alkyl benzene f. Oxidative cleavage of alkenes and alkynes g. Oxidation of primary alcohols • Reactions of carboxylic acids (Derivatives) a. Chemistry of esters (reactions and preparations) b. Chemistry of acid anhydrides (reactions and preparations) c. Chemistry of amides (reactions and preparations) d. Chemistry of acid halides (reactions and preparations) e. Chemistry of Nitriles (reactions and preparations) • Polyamides and polyesters [Chain-growth and step-growth polymers] • Biological carboxylic acids (thiol ester) • Drug containing carboxylic acids and derivatives

6 - Week 8:- (Carbonyl Alpha-Substitution Reactions) • Acidity of Alpha hydrogenatoms [Enolate ion formation] • Keto-enol Tautomerism • Alpha-Halogenation of ketones and aldehydse • Alpha-Halogenation of Carboxylic acids [Hell-Volhard-Zelinski reaction] • Halogenation of enolate ions[Haloform reactions] • Alkylation of enolate [Malonic ester alkylation] • Drug synthesis via carbonyl alpha-substitution reactions

7 - Week 9-10 (Aliphatic and aromatic amines) • Physical properties • Morphine alkaloids and rule • Amine basicity and relative basicity of aromatic and aliphatic amines • Preparation of aliphatic and aromatic amines a. SN2 reactions of alkyl halides with amines b. Gabriel Synthesis c. Reduction of nitriles and amides using $LiAlH_4$ d. Reductive amination of aldheydes and ketones e. Hofmann and Curtis Rearrangements f. Reduction of nitro compounds • Reactions of Amines a. Alkylation b. Acylation c. Hofmann Elimination d. N-Oxidation e. Amines and sulfonamide [Sulfa drugs] f. Diazonium salts and Sandmeyer reaction g. Azo compounds and dyes • Amines containing drugs

8 - Week 11:- (Phenols) Physical properties [Solubility, antiseptic and disinfectant features] Phenols acidity. Preparation of phenols. Alkali fusion of aromatic sulfonates. Hydrolysis of arenediazonium salts. Reactions of phenols. Alcohol-like reactions [Nucleophilic substitutions and esterfications]. Electrophilic aromatic substitution [Kolbe-Schmitt Carboxylation]. Oxidation of phenols. Claisen rearrangement. Phenol containing drugs

9 - Week 12:- (Heterocycles and Nucleic acids) • Physical properties • Nomenclature of heterocyles • Preparation of heterocyclic rings a. Hantzsch Dihydropyridine (Pyridine) Synthesis b. Paal-Knorr Pyrrole Synthesis • Synthesis and mechanistic interpretation for several heterocyclic mono-ring and fused system among drug synthesis • Reactions of heterocycles a. Electrophilic aromatic substitutions for aromatics heterocyles b. Nucleophilic aromatic substitutions for aromatics heterocyles • Structure of DNA and base pairing

10 - Week 13-14:- Special topics Carbohydrates. ?-Amino acids. Peptides. proteins. Lipids

PHCH2304 Analytical Chemistry II

1 - Analysis by gravimetry: Precipitating method and volitalization method
2 - Volumetry: Standard solution, concentration units, dilution
3 - Acid -base titration: Ka,kb, buffer, pH, salt, titration curve, indicators, application of drugs
4 - Acid-base titration in non-aqueous media: Concepts, indicator, applications
5 - Redox titration: iodimetry, iodometry, permanganatometry, cerimetry, bromatometry, chromatometry, indicators, Karl-Fischer method, application of drugs,
6 - Precipitation titration: Ksp, argenometry, indicators, Mohers-, Volhards-, and Fajans method
7 - Complexometry: EDTA,chelate, Kf, indicator, titration techniques, applications of drugs
8 - Potentiometric titration: Reference electrode, indicator electrode, automatic titrator, potentiometric end point detection in pharmacopiea

PHTC2203 Physical Pharmacy 2

1 - Interfacial phenomena: liquid interfaces, adsorption at the liquid interfaces, adsorption at the solid interfaces, application of surface active agents, electric properties of interfaces.
2 - Colloids: introduction, types of colloidal system, optical properties of colloids, kinetic properties of colloids, electric properties of colloids, micellar solubilization.
3 - Rheology: introduction, Newtonian systems, Non-Newtonian systems, Thixotropy, Negative Thixotropy, Rheopexy, determination of rheologic properties, viscoelasticity, psychorheology, applications to pharmacy.
4 - Diffusion and dissolution: steady state diffusion, procedures and apparatus, dissolution, drug release, diffusion principles in biologic systems, Ficks first and second laws, diffusion and ecology, pH partition theory.
5 - Kinetics: rates and orders of reactions, influence of temperature and other factors on reaction rates, decomposition and stabilization of medicinal agents, kinetics in the liquid state, accelerated stability analysis.
6 - Coarse dispersions (will be discussed within the previous chapters): suspensions, interfacial properties of suspended particles, settling in suspensions, emulsions, physical stability of emulsions, preservation of emulsions, rheologic properties of emulsions.

PHPT2306 Human Physiology (1)

1 - Homeostasis: The Foundation of Physiology
2 - The plasma membrane and membrane potential
3 - Neuronal physiology
4 - Central nervous system
5 - Peripheral nervous system (afferent division; special senses)
6 - Peripheral nervous system (efferent division)
7 - Muscle physiology

PHCH2207 Biochemistry 1

1 - Enzymes structures, types, catalysis, inhibition, kinetics and functions
2 - Carbohydrates structures, types and functions
3 - Lipids structures, types and functions
4 - Vitamins structures, types and functions
5 - Nucleic acids structures, types and functions
6 - Amino acids and proteins structures, types and functions

ISLM2105 Holy Quran (2)

PHPT3108 Human Physiology Lab

1 - Introduction and General instructions.
2 - Sensation, Receptor adaptation and Vision.
3 - Cardiovascular system 1) The conduction system of the heart and ECG.
4 - Cardiovascular system 2) Blood pressure and pulse rate determinations.
5 - Blood and Blood Tests.
6 - Respiratory System Physiology and Tests.
7 - Urinalysis: General characteristics, Chemical and Microscopical Examination.
8 - Chemical and Physical Processes of Digestion.
9 - .Muscle physiology

PHPT3307 Human Physiology (2)

1 - Cardiac physiology.
2 - Blood vessels, blood pressure and blood.
3 - The Respiratory System
4 - The Urinary System
5 - The Digestive System

PHTC2108 Pharmaceutics I Lab

1 - includes methods of preparation of liquid dosage forms e.g emulsion and suspension, its physical and pharmaceutical problems
2 - methods of preparation of semisolid preparations and limitation during preparation practically
3 - small scale formulation of suppositries and its practical precaution during work

PHTC2307 Pharmaceutics I

1 - Includes principles of dosage form design ,
2 - formulation and its problems of emulsion and suspension
3 - formulation and its problems of ointments, pastes ,creams, and gels
4 - formulation and its problems of suppositries
5 - formulation and its problems areosols
6 - formulation and its problems liposomes

ISLM2202 Studies in Islamic Faith

PHCH3107 Biochemistry lab.

1 - Qualitative carbohydrates
2 - Qualitative proteins
3 - Qualitative Lipids
4 - Acid value, saponification value and ester value
5 - Quantitative glucose
6 - Quantitative cholesterol
7 - Quantitative triglycerides
8 - Quantitative proteins
9 - Quantitative uric acid

PHCH3208 Biochemistry 2

1 - Carbohydrates metabolism
2 - Amino acids and proteins metabolism
3 - Lipids metabolism
4 - Nucleic acids metabolism and protein synthesis

ISLM3107 Holy Quran (3)

PHPT3204 Pathphysiology 1

1 - Introduction to pathophysiology
2 - Tissue adaptation and injury
3 - Neoplasia
4 - Immunity and the immune system
5 - Inflammation, tissue repair and wound healing
6 - Allergic and hypersensitivity reactions
7 - Alteration in hemostasis and blood coagulation
8 - Alteration in blood pressure
9 - Alteration in cardiac function
10 - Heart failure and circulatory shock

PHTC3110 Pharmaceutics II Lab

1 - Powder: properties and preparation, the importance of the particle size reduction, powders for internal and for external application.
2 - Granulation: reasons for granulation, additives, steps of granulation sieving analysis, protocol for preparion of granules.
3 - Tablets: preparation methods: wet and dry methods and direct compression methods for preparation of tablets.
4 - Testing of tablets: Evaluation parameters, hardness, disintegration and dissolution testing of tablets. Tablet coating.
5 - Capsules: hard and soft gelatin capsules (formulations)

PHTC3209 Pharmaceutics II

1 - Particle size reduction: advantages and disadvantages. Objectivs. Noyes-Whitney equation. Mechanisms of size reduction.
2 - Micromeritics: Definition, factors affecting the particle size. Particle size characterization.
3 - Sieving: size separation efficiency
4 - Granules and reasons for granulation, methods for granulation, granulation mechanisms.
5 - Powders: Classification and Properties, Adhesion and Cohesion forces, Flowability, Angle of repose, Packing Geometry, Porosity and Bulk Density.
6 - Granulation: Definition, Reasons for granulation, Methods for Granulation, Dry and Wet granulation, Mechanism of granule formation and Pharmaceutical Granulation Equipment used.
7 - Tablets: advantages and disadvantages, types and classes of tablets.
8 - Stages of tablet formation, table ting machines (single and rotary machines for tableting)
9 - Production of tablets, wet granulation method for tableting, dry granulation method and direct compression.
10 - Tablet testing: content, hardness, disintegration and dissolution tests of tablets.
11 - Tablet coating: reasons for coating, types of tablet coating, functional coating.
12 - Capsules: advantages and disadvantages, types of capsules, hard and soft gelatin capsules.

ISLM2201 Studies in Prophetic Tradition

PHCG3208 Phytochemistry (1)

1 - Evaluation of Phytochemistry
2 - Introduction & Definitions
3 - Shikimates: Shikimic acid pathway, chemistry
4 - Phenols & Phenolic acids: Properties & Extraction, Pharmacological properties
5 - Phenols containing drugs: Uva-ursi, Cynara, Rosemarinus, Tolu balsam
6 - Coumarins: chemistry, classification, extraction & pharmacological properties
7 - Coumarin containing drugs: Hippocastanum, Ammi visnagae, Angelica
8 - Lignans & Neolignans: chemistry & pharmacology.
9 - Podophylum, Silybum, Schizandra
10 - Shikimate: Phynylpropane chain: Turmeric, Ginger, Kava
11 - Flavonoids: occurrence & classification
12 - Flavonoids: Chemistry & Biosynthesis
13 - Flavonoids: Properties, extraction & pharmacology
14 - citroflavonoids, Rutin, Isoflavonoids: Soya
15 - Ginkgo biloba, Passion, Thyme, Yarrow
16 - Anthocyanins: Properties, extraction & pharmacology.
17 - Anthocyanins containing drugs: Blueberry, Black currant, vitis venifera
18 - Tannins: Generalities & classification
19 - Tannins: chemistry, properties & Pharmacology.
20 - Tannins containing drugs: Quercus, Hamamelis, Alchemilla vulgaris.
21 - Crataegus, blackberry
22 - Polyketide: Walnut
23 - Quinones: chemistry, properties, extraction & pharmacology
24 - Quinones containing drugs: Senna, Cascara, Aloe, Rheum
25 - Hypericum,
26 - ,Orcinols & Phloroglucinols: Cannabis, Hops

PHPT3207 Pathphysiology 2

1 - 1. Pathophysiology of respiratory system. Alterations in respiratory function: infectious disorders, disorders of gas. exchange function.
2 - 2. Pathophysiology of renal system. Alterations in renal function: obstructive disorders, urinary tract infections, disorders of glomerular function, acute and chronic renal failure, alterations in bladder function.
3 - 3. Pathophysiology of the digestive system. Alterations in gastrointestinal function: disorders of the esophagus, disorders of the stomach, disorders of the small and large intestines. Alterations in hepatobilliary function: cholestasis, hepatitis, liver cirrhosis, pancreatitis.
4 - 4. Pathophysiology of the endocrine system. Alterations in pituitary, thyroid, parathyroid, and adrenal function: hypopituitarism, growth hormone disorders, thyroid hormone disorders, disorders of adrenal cortical function, diabetes mellitus.
5 - 5. Pathophysiology of the reproductive system. Alterations in male and female reproductive systems: disorders of the penis, scrotum, and testes, and the prostate, disorders of the vagina, disorders of the uterus, disorders of the ovaries. Sexually transmitted diseases.

PHPT4310 Pharmacology (1)

1 - Part I- GENERAL PRINCIPLES OF PHARMACOLOGY
2 - Introduction to General Pharmacology
3 - Dose-Response Relationships
4 - Drug Receptors
5 - Signal Transduction Systems
6 - Pharmacogenetics and Pharmacogenomics
7 - Part II- AUTONOMIC NERVOUS SYSTEM AND NEUROMUSCULAR JUNCTION
8 - Functional and Neurochemical Organization of the Autonomic Nervous System
9 - Cholinergic Agonists and Antagonists
10 - Adrenergic Receptor Agonists
11 - Adrenergic Receptor Antagonists
12 - Neuromuscular transmission and Drugs (Muscle Relaxants)
13 - Part III- MEDIATORS AND MODIFIERS OF TSSUE
14 - The Eicosanoids
15 - Anti-inflammatory Analgesics
16 - Autacoids
17 - Histamine and Antihistamines

PHTC3213 Biopharmaceutics & Pharmacokinetics 1

1 - Introduction to Biopharmaceutics and pharmacokinetics 1.
2 - Libration, absorption, Distribution, metabolism and excretion of drugs.
3 - Biological membrane structure, mechanisms of absorption, factors affecting the drugs absorption.
4 - Routes of drug administration, oral route of administration, buccal and sublingual route of administration.
5 - Gastric absorption. Intestinal absorption, factors affecting the gastrointestinal absorption.
6 - Rectal absorption. Rectal suppositories and therapeutic uses. Factors affecting the rectal absorption.
7 - Parenteral routes of administration: Advantages and disadvantages, steps of absorption, factors affecting the intramuscular absorption of drugs.
8 - Subcutaneous administration of drugs: Steps of absorption, factors affecting the subcutaneous absorption of drugs.
9 - Intravascular administration of the drug: advantages and disadvantages, manners of administration (Bolus and infusion).
10 - The intranasal route of administration, the vaginal route of administration, the ear administration of the drugs.
11 - The ocular route of administration, advantages and disadvantages, factors affecting the ocular drug permeability.
12 - Pulmonary route of administration of the drugs, factors affecting the drug absorption.

PHTC3112 Pharmaceutics III Lab

PHTC3211 Pharmaceutics III

1 - Introduction to sterile dosage forms, definitions and application.

2 - Components of the sterile dosage forms, water for injection types, method for purification of water. Aqueous and no aqueous vehicles.

3 - Pyrogens and method used for depyrogenation. Packaging of injections Glass types control and testing of glass

4 - Packaging of injections : plastics , types control and testing of plastics

5 - Sterilization: definition and general concept, thermal and thermal methods for sterilization.

6 - Moist and dry method for sterilization: advantages and disadvantages, equipment used

7 - Sterilization by radiation and by using of chemical agents or by radiation by filtration. Control of the process od sterilization.

8 - Available injections: small and large volume parenterals , insulin for injection types and other injectable sterile dosage forms.

ISLM3201 Interpretation of Quran

PHCH2109 Technical Instruments Lab

1 - Refractometry: Quantitative analysis of glycerin water mixture

2 - Polarimetry: Quantitative analysis of dextrose IV infusion according to BP

3 - UV-VIS spectrophotometry: Determination of molar absorptivity from calibration curve

4 - UV-VIS spectrophotometry: The effect of solvent, pH, auxochrome on the UV absorbance

5 - UV-VIS spectrophotometry: assay of paracetamol tablets according to BP

6 - IR spectrophotometry: Sample handling techniques

7 - IR spectrophotometry: Drug identification using IR

8 - Flame Photometry: quantitative analysis of Normal saline infusion

9 - Flame Photometry: Determination of water hardness

10 - HPLC

11 - GC

12 - TLC

PHCH2308 Technical instruments

1 - First part: Spectroscopy
2 - Refractometry
3 - Polarimetry
4 - Introduction to Atomic Spectroscopy methods of analysis (Atomic Emission spectroscopy, Atomic absorption Spectroscopy)
5 - Introduction to molecular spectroscopy
6 - UV/VIS absorption spectroscopy-
7 - Fluorescence spectroscopy
8 - IR absorption spectroscopy
9 - Nuclear magnetic resonance
10 - Mass Spectrometry
11 - Second part: Analytical Separations
12 - Introduction to Chromatography
13 - Thin layer chromatography (TLC), Paper chromatography (PC), Column chromatography (CC)
14 - High performance liquid chromatography (HPLC)
15 - Gas Chromatography
16 - Capillary Electrophoresis (CE)

PHCH4210 Pharmaceutical Chemistry (1)

1 - 1-Introduction
2 - Factors affecting drug activity
3 - Drug biotransformation
4 - Prodrugs
5 - Chemotherapeutic agents
6 - Disinfectants and Antiseptics
7 - Urinary tract antiseptics, quinolones
8 - Antibacterial Sulfonamides
9 - Antibiotics
10 - ?-Lactam antibiotics (Penicillins, Cephalosporins, Monobactams ..)
11 - Carbapenems
12 - Carbapenems
13 - Tetracyclines
14 - Aminoglycosides
15 - Macrolides
16 - Polypeptides
17 - Antifungal agents

PHCG4209 Phytochemistry (2)

1 - Introduction
2 - Mevalonic acid Biosynthesis
3 - Monoterpenoid (C10) –chemistry
4 - Monoterpenoid – Drug
5 - Sesquiterpene (C15) – chemistry & Drugs
6 - Diterpene (C20) & Sesterterpenes (C25)
7 - Triterpenes (C30) – Chemistry) 1
8 - Triterpenes (C30) – Chemistry) 2
9 - Triterpenoid Saponins Steroids: cholesterol – phytosterols (1)
10 - Triterpenoid Saponins Steroids: cholesterol – phytosterols (2)
11 - Triterpenoid Saponins Steroids: cholesterol – phytosterols (3)
12 - Steroids: Vitamin D – Steroidal saponins
13 - Dioscorea spp – Steroidal Alkaloids 1
14 - Dioscorea spp – Steroidal Alkaloids 2
15 - Cardioactive Glycosides Chemistry (1)
16 - 1. Cardioactive Glycosides Chemistry (2)
17 - 2. Cardioactive Glycosides –Drugs-
18 - Bile Acids-chemistry
19 - Bile Acids-Applications
20 - Adrenocortical Hormones/Corticosteroids –chemistry-
21 - Corticosteroids drugs
22 - Progestogens
23 - Oestrogens – Phytoestrogens
24 - Androgens
25 - Steroidal hormone biosynthetic interrelationships
26 - Tetetraterpenes (C40) – Vitamin A
27 - Higher terpenoids
28 - General Review/discussions

PHCG4110 Phytochemistry I Lab

1 - Introduction to instrument used & safety rules
2 - Medicinal Plant Research Methodology Phytochemical Screening
3 - Identification of Starch & Sugars
4 - Identification of fatty acids
5 - Lipophilic extraction- Phenolic compounds
6 - Identification of main Constituents
7 - Thin Layer Chromatography –qualitative-
8 - Alcoholic extraction- Phenolic compounds
9 - Identification of main Constituents
10 - Thin Layer Chromatography –qualitative-
11 - Aqueous extraction- Phenolic compounds
12 - Identification of main Constituents
13 - Thin Layer Chromatography –qualitative-
14 - Thin Layer Chromatography for volatile oils

PHPT4312 Pharmacology (2)

1 - V- CARDIOVACULAR SYSTEM
2 - Cardiovascular System Overview and Organization
3 - Digitalis Glycosides and Other Positive Inotropic Agents
4 - Anti-arrhythmic Drugs
5 - Vasodilators and the Pharmacological Treatment of Hypertension
6 - Dyslipidemias and Antihyperlipidemic Drugs
7 - VI- RESPIRATORY, RENAL, BLOOD, AND IMMUNE SYSTEMS
8 - Drugs and the Respiratory System
9 - Diuretics
10 - Drugs That Affect Hemostasis
11 - Drugs (Agents) That Affect Erythropoiesis
12 - Immune system Organization, Modulation, and Pharmacology
13 - Pharmacotherapy of Acid-Peptic Disorders
14 - Pharmacotherapy of Intestinal Motility Disorders and Inflammatory Bowel Disease

PHTC4314 Biopharmaceutics & Pharmacokinetics 2

1 - Introduction to Biopharmaceutics and pharmacokinetics 1

2 - Application of biopharmaceutics and pharmacokinetics

3 - Compartmental analysis: Pharmacokinetics linear and non-linear compartmental models, uses of pharmacokinetics models

4 - Intravascular and extravascular administration of the drugs

5 - One compartmental open model after the administration of intravascular iv-bolus of drugs. Calculation of the constant rate of elimination of the drugs

6 - One compartmental open model after the extravascular administration of the drugs. calculation of the constant rate of absorption of the drugs. Factors affecting Cmax, tmax and the Ka of drugs.Calculations

7 - Two compartmental open model after the administration of intravascular iv-bolus of the drugs. Schematical and graphical representation of the model

8 - Non-linear pharmacokinetics: The Michaelis Menten equation, competitive and non-competitive inhibition

9 - Drugs distribution and plasma protein binding. Factors affecting the drug distribution and drug binding

10 - Biotransformation: Hepatic and extrahepatic routes of excretion of drugs. Factors affecting the drug excretion

11 - Drugs excretion: renal and non-renal excretion of drugs. Calculations

12 - Bioavailability: Definition and types, factors affecting the bioavailability of drugs. Posology: concept, factors affecting

PHCH4211 Pharmaceutical Chemistry (2)

1 - Introduction

2 - Antifungal agents

3 - Antihelmentics

4 - Antimalarials

5 - Antiprotozoals

6 - Antiscabious

7 - Antiviral agents

8 - Antineoplastics Agents

9 - Nonnarcotics analgesics (NSAIDs)s

10 - Narcotic drugs (morphine and related compounds

11 - Antitussive agents

PHCH4112 Pharmaceutical Chemistry Lab 1

1 - Assay of Nalidixic Acid Tablets

2 - Assay of Chloramphenicol Eye Drops

3 - Assay of Ciprofloxacin Caplets

4 - Assay of Amoxicillin Capsules

5 - Assay of Naproxen Tablets

6 - Assay of Furosemide Ampoule

7 - Assay of Lidocaine HCl Ampoule

8 - Assay of Ranitidine Ampoule

9 - Assay of Aspirin Tablets

10 - Assay of Indometacin Suppositories

11 - Assay of Ascorbic Acid tablets

PHCG4211 Phytochemistry (3)

1 - Alkaloids General Propoerteis
2 - Alkaloids from Ornithine
3 - Alkaloids from Lysine
4 - Alkaloids from Phenylalanine
5 - Opioid Chemistry
6 - Alkaloids fromTryptophan
7 - Alkaloids from terpeniods

PHCG4108 Phytochemistry II Lab

1 - Introduction to instrument used & safety rules
2 - Medicinal Plant Research Methodology Phytochemical Screening for Quantitative methods
3 - Extraction of Caffeine from Coffee and Tea Colorimetric assay of Caffeine
4 - Thin Layer & Paper Chromatography Characterization of Flavonoids from citrus groups
5 - Estimation of Tannin in Tea
6 - Isolation of Piperine
7 - Determination of tropan alkaloids from Hyocyamus aurous
8 - Determination of cardiotonic glycosides from Digoxin
9 - Determination of sterols from Withania somnifera
10 - Determination of Anthraquinon – Senna folium-
11 - Determination of Nicotine from cigarettes
12 - Determination of lecithin from Egg yolk

ISLM4113 Holy Quran (4)

PHPT5315 Pharmacology (3)

1 - A. Drugs affecting the central nervous system:
2 - 1.Neurodegenerative degenerative diseases: Neurotransmission in the CNS, Drugs used in Parkinson disease, Drugs used in Alzheimer disease
3 - 2.Anxiolytic and hypnotic drugs: Benzodiazepines, barbiturates, and other sedative-hypnotic drugs.
4 - 3. CNS stimulants: Psychomotor stimulants (methylxanthines
5 - 4. Anesthetics: Overview of general anesthetics, local anesthetics
6 - 5. Antidepressants: Drugs used in the treatment of major depression, including Selective Serotonin Reuptake Inhibitors, Serotonin/Norepinephrine reuptake inhibitors, tricyclic antidepressants, Monoamine oxidase inhibitors, treatment of mania and bipolar disease.
7 - 6. Antipsychotic drugs, second-generation antipsychotic drugs: Drugs used in the treatment of schizophrenia, including first-generation antipsychotic drugs.
8 - 7. Opioids: Strong agonists, moderate/low agonists, mixed agonists-antagonists and partial agonists, antagonists.
9 - B. Drugs affecting the endocrine system: Pituitary and thyroid, estrogens and androgens, and adrenal hormones.

PHTC4215 Industrial Pharmacy 1

1 - Industrial pharmacy is a very important course for fourth year pharmacy students because they will then almost come out to the labor market that includes working at factories :

2 - Introduction of industrial pharmacy: Difintion, general layout and plant desiesigning of the pharmaceurtical industry , pharmaceutical plant construction, nature and propertes of important materials emplooyed in construction and erection of plant, convenience and storage of raw materials.

3 - Heat transfer : 1- Clssification of heat flow process.2- Overall coefficient of heat transfer. 3- Mechanisms of heat transfer

4 - Flow of heat:1-Design of heating equipment. 2- Steam as a heating medim. 3- Tubular heater 4- Heat exchangers .

5 - Evaporation : 1- General principles of evaporation. 2- Types of evaporators. 3- Evaporation under reduced pressure. 4- Multiple effect evaporation.

6 - Drying: 1- Classification of dryers. 2- Dryers for dilute solutions and suspensions. 3- Dryers for solid materials. 4- Theory of drying loss on drying and moisture content, Equilibrium moisture content. 5- Principles of freeze drying. 6- Freeze - dryers (Lyophilizatio(.

7 - Mixing, Emulsificaion and Homogenization: 1- Fundamentals and mechanisms. 2- Mixing equipments used in liquid - liquid, liquid - solid, and solid - solid mixing.

8 - Crystallization: 1- Classification, batch crystallizers, simple vacuum crystallizers. 2- Nucleation and crystal growth.. 3- Critical humidity prevention of caking.

PHPT5221 Public Health & Preventative Medicine

1 - Concepts and definitions, levels of health, Epidemiology, factors affect health and disease,

2 - Infections: Viral, Bacterial, and Parasites.

3 - Health Indices: Basic statistics, and Measurement of risk.

4 - Environmental health: Air pollution, Water quality and quantity, Solid waste management, Food hygiene and safety, Radiation.

5 - Maternal and Child health: Maternal health, Child health and School health.

6 - Epidemiological Studies: Types of Epidemiological studies, and Screening.

7 - Vaccinations: Different types of vaccines. and Immunization scheduale

PHCH5114 PHARMACEUTICAL CHEMISTRY II LAB

1 - Synthesis of sulfonamide

2 - Assay of Aminophylline Injection

3 - Assay of Atenolol Tablets

4 - Assay of Chlordiazepoxide Tablets

5 - Assay of Chlorpomazine HCl Tablets

6 - Assay of Diazepam Tablets

7 - Assay of Diltiazem HCl Tablet

8 - Assay of Metformin HCl Tablets

9 - Assay of Warfarin Tablets

10 - Assay of Phenobarbital Tablets

11 - Assay of Pilocarpine HCl eye drops

12 - Synthesis of Paracetamol

PHCH4213 Pharmaceutical & Med. chemistry (3)

1 - Introduction CNS acting drugs
2 - General anesthetics (parenteral and inhaled)
3 - (Sedative and hypnotics (benzodiazepines , barbiturates&others
4 - Psychotherapeutic agents (antipsychotic , anti-depressants& psycho-analeptics)
5 - Psychomotor stimulants and Antiparkinsonism
6 - (Cholinergic agents (direct & indirect
7 - (Anti-cholinergics (anti-muscarinic & anti-nicotinic
8 - Cardiovascular Agents
9 - Antianginal Agents and Vasodilators
10 - Antiarrhythmic Drugs
11 - Antihypertensive Agents
12 - ACE-Inhibitor
13 - Angiotensin Antagonists
14 - Angiotensin II Blockers
15 - Renin Inhibitors

PHPT5220 Clinical Pharmacy

1 - Introduction to clinical pharmacy
2 - Drug related problems
3 - Adverse drug reactions and pharmacovigilance
4 - Interpretation of laboratory data
5 - Parenteral nutrition
6 - Neonates
7 - Pediatrics
8 - Geriatrics
9 - Drug use in pregnancy and lactation

PHPT5317 Pharmacotherapeutics1

1 - The course of Therapeutic I consist of 1- Introduction.
2 - 2- Antimicrobial therapy
3 - Inhibitors of cell wall synthesis
4 - Inhibitors of protein synthesis
5 - Nucleic acid inhibitors
6 - Antiseptic and analgesic of urinary tract infections
7 - 3-Clinical applications on antibiotics --
8 - Central nervous system infections
9 - Upper Respiratory Tract Infections (URIs)
10 - Lower Respiratory Tract Infections (LRIs)
11 - Gastrointestinal Tract Infections
12 - Urinary tract infections
13 - Bacterial Skin infection
14 - Chemotherapy of Tuberculosis & Leprosy
15 - Sexually Transmitted Diseases
16 - 4- Antifungal Agents & their clinical applications of topical and systemic fungal infections
17 - 5- Chemotherapy of protozoal infections:
18 - 6-Chemptherapy of Helminthic Diseases
19 - 7- Chemotherapy of Ectoparasites:

PHCH5217	**Pharmaceutical Chemistry 4**

1 - Antihyperlipidemic Agents
2 - Anticoagulants
3 - Thyroid Hormones
4 - Antithyroid Drugs
5 - Diuretics -
6 - Osmotic diuretics and mercurials
7 - Carbonic anhydrase inhibitors-
8 - Thiazides and thiazides-like derivatives-
9 - Loop diuretics and potassium-sparing diuretics-
10 - Synthetic Hypoglyccemic Agents-
11 - Sulfonylureas
12 - Biguanides
13 - New hypoglycemic agents
14 - :Local anesthetics Development, SAR, classification
15 - benzoic acid esters derivatives
16 - Anilide derivatives and others
17 - Antihistamines : H1- antagonist
18 - H2-antagonist
19 - PPI
20 - Agents Treating Bone Disorders
21 - Diseases of Bone Tissue Utilizing Approved Drug Therapies
22 - Drugs Used to Treat Diseases of the Bone
23 - Hormone Therapy
24 - Steroid hormones
25 - :Vitamins
26 - Lipid soluble vitamins -
27 - Water soluble vitamins-

PHCH5218 Clinical Biochemisty

1 - Methods of biochemical qualitative and quantitative analysis
2 - Hormones
3 - Metabolic disord disease and diabetes
4 - Blood and cardiovascular diseases
5 - Skelton diseases
6 - Respiratory disease
7 - CNS diseases
8 - GIT diseases
9 - Kidney and excretion disaease
10 - Deficiency and accumulation diseases
11 - Skin diseases

PHPT5219 TOXICOLOGY

1 - General principles of toxicology, including definitions, areas and scope of toxicology, types and characterization of toxic effects, interactions between chemicals, mechanisms of toxicity, and general factors affecting toxicity.

2 - 2.General principles involved in the management and treatment of poisoning: causes and sources of poisoning, advantages, disadvantages and application of different methods and techniques including emesis , gastric lavage, activated charcoal, whole bowel irrigation, forced diuresis, alkalization and acidification of urine, hemodialysis, hemoperfusion, peritoneal dialysis, plasma-plasma exchange, as well as common antidotes used in the management and treatment of poisoning.

3 - 3. Different aspects of toxicity of selected therapeutic agents including sedative and hypnotics , non-steroidal anti-inflammatory agents, opioids, antihistamines, contraceptives, vitamins, etc. by studying the sources of exposure, mechanisms of toxicity, toxic doses, signs and symptoms of toxicity, and specific treatments involved.

4 - 4. Different aspects of toxicity of selected drugs of abuse and hallucinogens by studying the sources of exposure, mechanisms of toxicity, toxic doses, signs and symptoms of toxicity, and specific treatments involved.

5 - 5. Selected examples of food and animal poisoning including bacterial and fungal toxins in food, snake, scorpion and spider venoms, etc., emphasizing the source of exposure, signs and symptoms of toxicity, and specific treatments involved.

6 - 6. Different aspects of toxicity of selected non-therapeutic agents including pesticides, metals, gases, and solvents, involving sources of exposure, mechanisms of toxicity, signs and symptoms and specific treatments involved.

PHPT5318 Pharmacotherapeutics 2

1 - Anticancer drug therapy

2 - Adverse effects of anticancer drugs and their management

3 - Antiviral drugs

4 - Hypertension

5 - Acute kidney injury

6 - Chronic kidney disease and end stage renal failure

7 - Coronary heart disease

8 - Peptic ulcer disease

9 - Liver disease

10 - Asthma

11 - Anemias