

Liverpool John Moores University

Title: FOUNDATION IN SCIENTIFIC BASIS OF THERAPEUTICS
Status: Definitive
Code: **4002SBPHAR** (113401)
Version Start Date: 01-08-2012

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ4 **Credit Value:** 24.00 **Total Delivered Hours:** 90.00

Total Learning Hours: 240 **Private Study:** 150

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	65.000
Online	1.000
Practical	12.000
Workshop	10.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination (mcq)	70.0	2.00
Report	AS2	Coursework (laboratory reports 5% for first semester work & 10% for second semester work and stage mcq test, contributing 15%)	15.0	
Test	AS3		15.0	

Aims

- (1) To present an introduction to basic human physiology, biochemistry and pharmacology to underpin therapeutics and pharmacy practice modules at higher levels.*
- (2) To introduce concepts of disease and pathological processes.*
- (3) To present the modes of action, clinical uses and side-effects of therapeutic agents in selected areas.*

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of the physiology and pharmacology, at the cellular, sub-cellular and molecular level of the body's neural and humoral communication systems including the effect of these systems on their effector cells.
- 10 Demonstrate a knowledge of enzyme action and inhibition.
- 11 Describe the processes involved in DNA replication and transcription
- 12 Demonstrate a knowledge of the genetic basis of disease and the potential for gene therapy.
- 13 Demonstrate a knowledge of normal and abnormal metabolism.
- 2 Demonstrate a knowledge of the physiology of the autonomic nervous system and the pharmacology, clinical uses and side effects of drugs which interact with it.
- 3 Describe the properties of selected autotoxins.
- 4 Demonstrate knowledge of the physiology, pathology and pharmacology of the gastrointestinal system.
- 5 Demonstrate knowledge of the physiology and pharmacology of the reproductive endocrine systems.
- 6 Describe the principles of homeostasis as applied to body fluids and body temperature.
- 7 Demonstrate a knowledge of blood cell formation, its abnormalities and their treatment.
- 8 Demonstrate a knowledge of blood clotting processes and their pharmacological manipulation.
- 9 Describe the structure, synthesis and function of proteins.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5	6	7	8	9	10	11	12	13
Laboratory reports	1	2	3	4									
End of Semester test	1	2	3	4	5	6							

Outline Syllabus

An introduction to cells as components of the body. A comparison of the roles of

nerves, hormones, local hormones, cell surface markers and second messengers in communication.

Drug actions and effects including receptor theory and basic concepts of pharmacodynamics. Second messengers. Therapeutic and adverse effects. Drug tolerance and dependence.

The peripheral nervous system, smooth and skeletal muscle. Electrophysiology of nerves and muscles. excitation-contraction coupling. Drugs affecting the neuromuscular junction. Local anaesthetics.

The structure and function of the autonomic nervous system (ANS). Central control of the ANS. The modes of action, clinical uses and side effects of pharmacological agents affecting the ANS including parasympathomimetics, parasympatholytics, sympathomimetics, symaptholytics, anticholinesterases and ganglion blockers.

The biosynthesis, storage (where applicable), release and physiological effects of histamine, serotonin, kinins and eicosanoids. A brief introduction to drugs influencing these autocoids.

An introduction to concepts of hormone action. Hormone receptors, receptor transduction, intracellular control mechanisms and genomic action.

Reproductive endocrinology as an example of the hormonal control of a system. The male reproductive endocrine system and its pathology. The endocrinology of the menstrual cycle and pregnancy, the birth process, lactation, the menopause, hormone replacement therapy, abortion, oral contraception with special focus on oestrogens, progesterones, prolactin, oxytocin together with hormone antagonists.

The gastrointestinal system as an example of a system controlled by the ANS, hormones and local hormones. Its structure and normal function and the nervous and humoral control of motility and secretion. The breakdown of foods and absorption of nutrients Peptic ulcers and their treatment. The pharmacological control of digestive juice secretion. The nature, causes and treatment of and diarrhoea. An overview of other bowel pathologies including inflammatory bowel disease.

The concept of homeostasis with a focus on the composition and formation of body fluids and their compartments and temperature regulation.

Haematology, including erythropoeisis, synthesis degradation, structure and function of haemoglobin. The causes and treatment of anaemia. Leucopoeisis. Classification of leukaemias. Haemostasis: platelet function and platelet drugs, coagulation and anti-coagulants, fibrinolysis and its activators and inhibitors.

The structure and function of proteins and enzymes. The kinetics of enzyme action and types of enzyme inhibition.

DNA replication and transcription. mRNA translation. Molecular genetics. The genetic basis of disease and an introduction to the concept of gene therapy.

Normal and abnormal metabolism with an overview of metabolic pathways and physiological use of energy sources.

Learning Activities

Lectures, practicals and tutorials.

References

Course Material	Book
Author	Rang Dale Ritter & Moore
Publishing Year	2007
Title	Pharmacology
Subtitle	
Edition	6th Edition
Publisher	Livingstone Churchill
ISBN	0443069115

Course Material	Book
Author	Dale
Publishing Year	2009
Title	Pharmacology
Subtitle	Condensed
Edition	2nd Edition
Publisher	Elsevier
ISBN	9780443067730

Course Material	Book
Author	Reid Rubin & Walters
Publishing Year	2006
Title	Lecture Notes
Subtitle	Clinical Pharmacology & Therapeutics
Edition	7th Edition
Publisher	Blackwell
ISBN	9781405135191

Course Material	Book
Author	Greene & Harris
Publishing Year	2008
Title	Pathology and Therapeutics for Pharmacists
Subtitle	
Edition	3rd Edition
Publisher	Pharmaceutical Press
ISBN	9780853696902

Notes

This module provides a foundation for therapeutics, pharmaceutical sciences and clinical pharmacy practice modules.