Liverpool John Moores University

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Title:	SCIENTIFIC BASIS OF THERAPEUTICS 3
Status:	Definitive
Code:	**6502SBPHAR** (111551)
Version Start Date:	01-08-2012
Owning School/Faculty:	Pharmacy & Biomolecular Sciences
Teaching School/Faculty:	Pharmacy & Biomolecular Sciences

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Academic Level:	FHEQ6	**Credit Value:**	36.00	**Total Delivered Hours:**	106.00
Total Learning Hours:	360	**Private Study:**	254		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	81.000
Practical	3.000
Seminar	3.000
Tutorial	2.000
Workshop	14.000

Grading Basis: 40 %

Assessment Details

Category	Short	Description	Weighting	Exam

	Description		(%)	Duration
Exam	EX	Examination	60.0	3.00
Presentation	PBL	Assessed by LJMU staff and external tutors by report and presentation. Attendance at all four timetabled sessions is compulsory	15.0	
Report	ECG/BP	Attendance at an ECG/BP Lab and submission of a report are compulsory. Students must attend their timetabled session.	5.0	
Test	CNS	Students attend a workshop and take a test which is comprised of multiple choice questions. Attendance at the timetabled session is compulsory.	10.0	
Test	Immuno	Students attend a workshop and take a test which is comprised of multiple choice questions. Attendance at the timetabled session is compulsory. The session is timetabled in the module 'Clinical Pharmacy and Therapeutics'	10.0	

Aims

1. To generate a thorough knowledge of the functional anatomy, pathophysiology, pharmacology and therapeutics of the human cardiovascular system. To present the modes of action, clinical uses, contra-indications, side-effects and interactions of the more commonly used cardiovascular drugs.
2.To present the cellular mechanisms underlying the functioning of the CNS and the various drugs which act on it. To explain the organisation of the CNS in relation to function and disorder. To demonstrate the mode of action and clinical use of drugs used to treat CNS disorders. Mental illness and its various causes. Drug development and design of CNS active drugs.
3.To introduce fundamental concepts of the defence of the body, and to consider a number of immunological and inflammatory disease states and their treatment.

Learning Outcomes

After completing the module the student should be able to:

1 demonstrate an understanding of the aetiology, pathophysiology and therapeutics of the major cardiovascular diseases.
10 describe the major components of body defence systems and explain the interrelationship and functions of these components.
11 identify commonly encountered inflammatory and immunological diseases.
12 advise on the use of drug treatment and immunological manipulations in a wide range of disease states.
13 Interact professionally with NHS staff and patients in clinical settings, whilst collecting patient histories and learning of current therapeutic practices.
2 demonstrate the manner in which the basic principles (outlined above) underpin a

rational approach to the treatment of those diseases.

3 demonstrate a knowledge of the structures, licensed indications, dosage regimes, side-effects and contra-indications of the major classes of cardiovascular drugs.

4 demonstrate acquisition of practical skills relevant to specific aspects of cardiovascular physiology and pharmacology (e.g. recording and analysis of ECG).

5 describe the key areas of the CNS and their functional interrelationships.

6 describe the key stages in CNS development in relation to function and how these stages may be impaired by teratogens.

7 describe the key features of CNS neurone function and the major neurotransmitter systems along with their receptors.

8 relate sensory and motor function to key human activities and relate dysfunction to CNS disorders.

9 demonstrate a knowledge of the causes of mental illness and neurological disorders and the drugs used to treat them.

Learning Outcomes of Assessments

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

Examination	1	2	3	5	6	7	8	9	10	11	12
Problem Based Learning	1	2	3	4	13						
Cardiovascular Lab	4										
CNS Workshop and Test	9										
Immunology Workshop and Test	10	11	12								

Outline Syllabus

Physiology of the electrical and mechanical events in the heart cycle. Control of heart rate, myocardial contractility, venous return, cardiac output, blood pressure and blood volume. Formation of lymph and oedema.
Pathophysiology and therapeutics of hypertension, hyperlipidaemia, angina pectoris, myocardial infarction, cardiac dysrhythmia and cardiac failure. The pharmacology of all classes of drugs, with reference to named examples, used in the treatment of the aforementioned diseases.
Development of the CNS and congenital defects. Functional CNS anatomy and histology. Neurochemistry. Major neurotransmission systems and their receptors. Receptor neurobiology and transduction.
Basic neurophysiology, sensory transduction, sensory processing and perception. Brain stem and control of vegetative function. Motor systems. Cortical function and disorders. Neurological disorders and their treatment. Nociception.
Pain and analgesia.
Mental illness and its various causes. Major groups of drugs used to treat mental illness and neurological conditions: their mechanisms of action and clinical pharmacology.
Development of CNS drugs, their metabolism and pharmacokinetics.
Drug and substance abuse.
Overview of immunity:innate and adaptive; self; antigens; immune surveillance.

Components: humoral - antibodies, lymphokines, other cytokines; cellular - lymphocytes, phagocytes, antigen-presenting cells.
Clonal development.
Memory.
Antibody synthesis
Immunisation:Active, passive.
Complement.
Hypersensitivity: Types, treatment.
Inflammation: Vascular changes, cellular responses, mediator concept.
Inflammatory diseases: Arthritis, colitis, dermatitis.
Anti-inflammatory drugs: Clinical uses, mechanisms.
HLA
Tissue transplantation: Graft rejection, immune suppression.
Tolerance
Autoimmunity.
Tumour immunology
Immune deficiency: types, diseases.

Learning Activities

Lectures, tutorials, seminars, problem-based learning, workshops & practicals.

References

Course Material	Book
Author	Ganong, W.F.
Publishing Year	2003
Title	Review of Medical Physiology
Subtitle	
Edition	21st
Publisher	Appleton & Lange
ISBN	0071402365

Course Material	Book
Author	Katzung, W.F.
Publishing Year	2004
Title	Basic & Clinical Pharmacology
Subtitle	
Edition	9th
Publisher	Appleton & Lange
ISBN	0071410929

Course Material	Book
Author	Shepherd, G.M.
Publishing Year	2001

Title	Neurobiology
Subtitle	
Edition	3rd
Publisher	Oxford University Press
ISBN	0-19-508843-5

Course Material	Book
Author	Abbas, A.K. & Lichtman, A.H.
Publishing Year	2004
Title	Basic immunology: Functions and disorders of the immune system
Subtitle	
Edition	2nd
Publisher	Elsevier
ISBN	0-7216-0241-X

Course Material	Book
Author	Male, D.
Publishing Year	2004
Title	Immunology an illustrated outline
Subtitle	
Edition	4th
Publisher	Elsevier
ISBN	0-323-02945-0

Course Material	Book
Author	Abbas, A.K. & Lichtman, A.H.
Publishing Year	2003
Title	Cellular and molecular immunology
Subtitle	
Edition	5th
Publisher	Elsevier
ISBN	0-7216-0008-5

Course Material	Book
Author	Rang, H.P., Dale, M.M., Ritter, J.M. & Moore, P.K.
Publishing Year	2003
Title	Pharmacology
Subtitle	
Edition	5th
Publisher	Churchill Livingstone
ISBN	0443071454

Notes

This Module integrates with Pharmacy Practice at Level 3 and together they

underpin therapeutics at Level 4.