

## Liverpool John Moores University

Title: SCIENTIFIC BASIS OF THERAPEUTICS 3  
Status: Definitive  
Code: **6003SBPHAR** (113418)  
Version Start Date: 01-08-2020

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

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**Academic Level:** FHEQ6      **Credit Value:** 36      **Total Delivered Hours:** 109  
**Total Learning Hours:** 360      **Private Study:** 251

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	81
Practical	3
Seminar	3
Tutorial	2
Workshop	17

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	EXAM	Examination. See module handbok for deta See module handbook for	60	3

Category	Short Description	Description	Weighting (%)	Exam Duration
		details of examination structure		
Portfolio	SDL	Assessed by external tutors, seminar presentation and portfolio. Attendance at all four timetabled sessions is compulsory. See module handbook for further details.	20	
Report	Blog	Students are required to keep a blog based on primary research relevant to topics studied in the module. Please see the module handbook for further details.	20	

## 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.
- 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 (including clinical guidelines) , side-effects and contra-indications of the major classes of cardiovascular drugs.
- 4 Demonstrate an understanding of the physiology 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, including relevant clinical guidelines.
- 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.

## 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
Student Directed Learning	1	2	3	4	5	6	7	8	9	10	11	12
Blog	1	2	6	7	8	9	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, student-directed learning (problem-based learning), workshops & practicals.

## **Notes**

This Module integrates with Pharmacy Practice at Level 3 and together they underpin therapeutics at Level 4.