

## Liverpool John Moores University

Title: UNDERSTANDING AND CONTROLLING VIRAL INFECTIONS  
Status: Definitive  
Code: **7001VMBMOL** (113120)  
Version Start Date: 01-08-2015

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

Team	Leader
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**Academic Level:** FHEQ7      **Credit Value:** 20.00      **Total Delivered Hours:** 43.00  
**Total Learning Hours:** 200      **Private Study:** 157

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Tutorial	40.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Essay	40.0	
Exam	Exam	Written examination	60.0	3.00

### Aims

- 1. To provide students with the fundamental principles of epidemiology as related to viral diseases*
- 2. To extend knowledge and appreciation of the scientific principles used in the control of viral infections and related diseases*

### 3. To introduce students to the roles of viruses in development of cancers

## Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate a systematic understanding of the basic concepts and use of epidemiology and its application in understanding and preventing viral diseases
- 2 Discuss the principles of vaccination, the various types of anti-viral vaccines available and explain the benefits of childhood vaccine strategies and other selective vaccines
- 3 Critically evaluate the mechanisms and strategies for antiviral drug usage together with an advanced understanding of the characteristics of an ideal antiviral drug and how resistance occurs, and its implications for viral infections
- 4 Critically evaluate the types of virus-host relationships important in human carcinomas, the disease processes, and the impact on the immunocompromised host

## Learning Outcomes of Assessments

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

ESSAY	1		
EXAM	2	3	4

## Outline Syllabus

*Basic concepts of epidemiology and causal relationships*  
*Use of epidemiology to predict and control the spread of viral diseases, using AIDS, influenza, small pox and haemorrhagic fevers as examples*  
*Cohorts, rates, incidence and prevalence, the predictive values of positive and negative results and the scope and use of meta-analysis*  
*Smallpox eradication as an example of a successful vaccination campaign and poliomyelitis vaccination as an example of a current campaign*  
*Principles of vaccination, passive and active vaccination, selective and universal vaccination, attenuation, prophylactic and therapeutic vaccines and adjuvants*  
*Attenuated and killed vaccines, split vaccines, subunit vaccines, peptide vaccines, recombinant antigens, DNA vaccines (especially in relation to usage in the immunocompromised host)*  
*Childhood vaccination schedules, chronicity and carriers*  
*Strategies for antiviral drug usage, potency, bioavailability, drug resistance, topical agents*  
*Antiviral drugs and their clinical use against influenza, herpesviruses, HIV*  
*Interferon, nucleoside and non-nucleoside analogues, protease inhibitors, reverse transcriptase inhibitors, neuraminidase inhibitors*  
*Tumours, malignancy, transformation and oncogenesis*  
*Papovaviruses (Polyomaviruses, Papillomaviruses, HPV) and vaccines*  
*Herpesviruses and cancer (EBV, HHV-8)*

*Hepatitis viruses and cancer (HBV, HCV) and vaccines*  
*Retroviruses and cancer (HTLV-1, HTLV-2)*

## **Learning Activities**

Distance learning with tutorial support

Learning materials delivered by VLE (Blackboard) to include directed reading, online lectures, online assessments with feedback, online discussions

## **Notes**

There will be particular emphasis on developing independent learning skills and IT capability to access and extract relevant scientific information via Blackboard and databases available from LJMU. Online literature searches and evaluation of relevant scientific and popular literature will be key aspects, together with development of communication skills. An interactive reading list, including e-texts, will be made available via VLE.

This module will be offered as a single module CPD.