

## Liverpool John Moores University

Title: ADVANCED IMMUNOLOGY  
Status: Definitive  
Code: **6002BCBMOL** (101445)  
Version Start Date: 01-08-2011

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

Team	Leader
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**Academic Level:** FHEQ6      **Credit Value:** 12.00      **Total Delivered Hours:** 23.00  
**Total Learning Hours:** 120      **Private Study:** 97

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	21.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	3 essays from 6, in 2 hours	80.0	2.00
Essay	AS2	1 in-class 40 minute essay	20.0	

### Aims

*To provide an advanced understanding of the activation and control of the immune response at the molecular level and to demonstrate that normal immune mechanisms can be harmful when the regulatory networks fail to work appropriately.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss the molecular basis of receptor diversity in the immune system.
- 2 Discuss the regulation of immune responses by genetic, cellular and soluble factors.
- 3 Discuss the interaction of innate and adaptive immune mechanisms.
- 4 Discuss the underlying immune mechanism of at least one named disease.
- 5 Discuss advancements in the study of immunity through modern experimental and diagnostic techniques.

## Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5
CW	1	2	3	4	5

## Outline Syllabus

*Generation of diversity, antibody and T-cell receptor genes, immunoglobulin supergene family. Lymphocyte activation and signal transduction. Immune networks and control of the immune response. Immunity and inflammation. Thymic selection and tolerance.*

*Cytokines and chemokines: gene expression and mechanisms of action. The MHC, antigen processing and presentation. Innate immunity and pattern recognition. Immunosurveillance. Immunodeficiency. Hypersensitivity.*

*Advanced techniques: phage display antibodies, recombinant DNA, immunoassay, western blotting, immunoprecipitation, affinity chromatography, flow cytometry, immunohistochemistry.*

## Learning Activities

Lectures, videos, tutorials.

## References

<b>Course Material</b>	Book
<b>Author</b>	Abbas, A. K., Lichtman, A. H., Pillai, S.
<b>Publishing Year</b>	2007
<b>Title</b>	Cellular and Molecular Immunology
<b>Subtitle</b>	
<b>Edition</b>	6th ed.
<b>Publisher</b>	Saunders

<b>ISBN</b>	9781416031222
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<b>Course Material</b>	Book
<b>Author</b>	Goldsby, R. A., Kindt T. J. and Osborne, B. A.
<b>Publishing Year</b>	2007
<b>Title</b>	Immunology
<b>Subtitle</b>	
<b>Edition</b>	6th ed.
<b>Publisher</b>	Freeman .
<b>ISBN</b>	9780716785903

<b>Course Material</b>	Book
<b>Author</b>	Burmester, G. R. and Pezzutto, A.
<b>Publishing Year</b>	2003
<b>Title</b>	Color Atlas of Immunology
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	
<b>ISBN</b>	0865779643

<b>Course Material</b>	Book
<b>Author</b>	Murphy, K., Travers, P., Walport, M.
<b>Publishing Year</b>	2008
<b>Title</b>	Immunobiology
<b>Subtitle</b>	
<b>Edition</b>	7th ed.
<b>Publisher</b>	Garland Science.
<b>ISBN</b>	0815341237

<b>Course Material</b>	Book
<b>Author</b>	Hannigan, B.M., Moore, C.B.T., Quinn, D.G.
<b>Publishing Year</b>	2009
<b>Title</b>	Immunology
<b>Subtitle</b>	
<b>Edition</b>	2nd ed.
<b>Publisher</b>	Scion.
<b>ISBN</b>	9781904842569

<b>Course Material</b>	Book
<b>Author</b>	Stites, D. P., Terr, A. I., Parslow, T. G. and Imboden, J. B.
<b>Publishing Year</b>	2001
<b>Title</b>	Medical Immunology
<b>Subtitle</b>	
<b>Edition</b>	10th ed.
<b>Publisher</b>	McGraw Hill
<b>ISBN</b>	0838563007

<b>Course Material</b>	Book
<b>Author</b>	Parham, P.
<b>Publishing Year</b>	2009
<b>Title</b>	The Immune System
<b>Subtitle</b>	
<b>Edition</b>	3rd ed.
<b>Publisher</b>	Garland Science.
<b>ISBN</b>	9780815341468.

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### **Notes**

The module assumes a basic understanding of the immune system and advances the student's knowledge of the control of the immune system at a molecular level.

The title for the in-class essay will encompass one or more of the learning outcomes.