## **London South Bank** University

# Module guide

## **Disease and immunity**

Unit Ref. SBS - 2 - 511

Blackboard site

**Faculty of Engineering, Science and Built Environment** 

2015/16

Level 5

## become what you want to be

## **Table of contents**

| 1.0  | LINIT DETAILS                                      | 3     |
|------|--|-------|
| 2.0  |  | <br>د |
| 2.0  | SHORT DESCRIPTION                                  |       |
| 3.0  | AIMS OF THE UNIT                                   | 3     |
| 4.0  | LEARNING OUTCOMES                                  | 4     |
| 4.1  | KNOWLEDGE AND UNDERSTANDING                        | 4     |
| 4.2  | INTELLECTUAL SKILLS                                | 4     |
| 4.3  | PRACTICAL SKILLS                                   | 4     |
| 4.4  | TRANSFERABLE SKILLS                                | 4     |
| 5.0  | INTRODUCTION TO STUDYING THE UNIT                  | 5     |
| 5.1  | OVERVIEW OF THE MAIN CONTENT                       | 5     |
| 5.2  | OVERVIEW OF TYPES OF CLASSES                       | 5     |
| 5.3  | IMPORTANCE OF STUDENT SELF-MANAGED LEARNING TIME   | 5     |
| 6.0  | THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT | 6     |
| 7.0  | ASSESMENT OF THE UNIT                              | 8     |
| 8.0  | LEARNING RESOURCES                                 | 9     |
| 8.1  | CORE MATERIALS                                     | 9     |
| 8.2  | OPTIONAL MATERIALS                                 |       |
| NOTE | S  | 9     |
|      |  |       |

## 1.0 UNIT DETAILS

| Unit Title:                             | Disease and Immunity             |
|---|----------------------------------|
| Unit Level:                             | 5                                |
| Unit Reference Number:                  | SBS - 2 - 511                    |
| Credit Value:                           | 1 Credit = $15$ CATS units       |
| Student Study Hours:                    | 150 hours                        |
| Contact Hours:                          | 51hours                          |
| Private Study Hours:                    | 99 hours                         |
| Pre-requisite Learning (If applicable): | Microbiology                     |
| Co-requisite Units (If applicable):     | None                             |
| Course(s):                              | Food and Bioscience Programme    |
| Year and Semester                       | 2004/05 Semester 2               |
| Unit Coordinator:                       | Dr Neil Morgan                   |
| UC Contact Details (Tel, Email, Room)   | 020-7209-7956                    |
|   | Email Morgannl@lsbu.ac.uk        |
|   | Room J 503                       |
| Teaching Team & Contact Details         | Dr M. Byford                     |
| (If applicable):                        | 020-7209-7598                    |
|   | Email <u>Byfordmf@lsbu.ac.uk</u> |
|   | Room J 503                       |
| Subject Area:                           | Bioscience and Food              |
| Summary of Assessment Method:           | 100% Examination                 |

"This guide is designed to help you structure your learning by providing an indicative structure and content for the unit. It is a guide and not a definitive statement of what you will be taught. We will try to follow this published schedule as far as possible, but there may be some variation as the unit develops and as we try to match the pace and content of our teaching to student needs."

## 2.0 SHORT DESCRIPTION

The unit looks at various types of disease:

Infectious, congenital (genetic and acquired), degenerative, metabolic (endocrine and nutritional), immunological (auto immune, allergic, inflammatory), nepotistic. The basics of the immune system and diagnosis and therapy.

## 3.0 AIMS OF THE MODULE

- 1. To give the students an appreciation of the role of disease in history and the perceptions of what is health and ill health.
- 2. To transmit a body of factual knowledge on basic immunology.
- 3. Survey the various types of disease and methods used to study them including epidemiology, diagnosis and therapy.

## **4.0 LEARNING OUTCOMES**

## 4.1 KNOWLEDGE AND UNDERSTANDING

At the end of this unit, a student will be able to:

- 1. Appreciate the many types of disease and the methods of diagnosis, and therapy.
- 2. Understand the basic structure and function of the immune system.

## 4.2 INTELLECTUAL SKILLS

Students who engage fully with the unit will further develop skills acquired earlier in the programme of study. In particular, there will be opportunities to develop:

*learning how to learn;* there are numerous aspects to this skill which will be developed e.g. time management, finding information, analysing information critically.

*Use of information and communication technology*: the use of internet data bases and the Internet and CD-ROMs will be expected. As well as the unit's Blackboard site.

*ability in critical analysis;* this key intellectual skill is a major learning outcome of this unit and a main indicator of attainment of graduate status. In the unit the practical classes will develop this skill.

understanding methodologies; this will developed as a result of practical classes

*Numeracy skills*: will be practised during the practical sessions.

## 4.3 PRACTICAL SKILLS

The practical programme will involve microscopy, calibration, analysis of data of prepared human blood slides. Basic immunological techniques will be learnt.

## 4.4 TRANSFERABLE SKILLS

*Communication skills*; oral communication will be required during scheduled classes and practical sessions.

Ability to work in a team; The development will be an important skill will occur during the practical sessions.

## 5.0 INTRODUCTION TO STUDYING THE MODULE

#### 5.1 OVERVIEW OF THE MAIN CONTENT

#### **Health and Disease**

Theories of health and ill health in different cultures and times.

#### **Types of Disease**

Infectious, congenital (genetic and acquired), degenerative, metabolic (endocrine and nutritional), immunological (auto immune, allergic, inflammatory), nepotistic.

#### Immunology

The non-specific immune system and inflammation. Specific immunity: B cells and antibodies, T cells. Clinical aspects: vaccination, immunodeficiency, hypersensitivity and autoimmunity. Using antibodies: immunoassays and monoclonal antibodies. **Recovery from disease** 

Immunological and chemotherapy.

#### 5.2 OVERVIEW OF TYPES OF CLASSES

#### **Teaching and Learning Pattern:**

The unit comprises of 12 weeks of formal lectures, (2 per week). Each student will take part in tutorials. In addition, there will be 4 practical sessions, each of 3 hour duration including a visit to the Fleming Museum.

#### 5.3 IMPORTANCE OF STUDENT SELF-MANAGED LEARNING TIME

In preparation for each lecture/tutorial/practical class you should read your notes from level 3 Microbiology from Biological Principles module

## 6.0 THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

Lectures and tutorials and practicals - please check the blackboard site as at time of printing changes are/were occurring.

|                        | <b>Lecture A</b><br>Friday NHLT | Tutorial | Lecture B | <b>Practical J302</b><br>Wednesday |
|------------------------|---------------------------------|----------|-----------|------------------------------------|
|                        | 10-11                           | 11-12    | 12-1      | 2-5                                |
| Week                   |                                 |          |           |                                    |
| 5 <sup>th</sup> Feb    | NLM                             | NLM      | NLM       |                                    |
| 12th                   | NLM                             | NLM 1    | MB        |                                    |
| 19th                   | NLM                             | NLM 2    | NLM       |                                    |
| $26^{\text{th}}$       | NLM                             | NLM 3    | MB        | Prac 2-5 24th                      |
| 4 <sup>th</sup> March  | NLM                             | NLM 4    | NLM       | Prac 2-5 2nd                       |
| 11th                   | NLM                             | NLM 5    | MB        | Prac 2-5 on 9th                    |
| 18th                   | NLM                             | NLM 6    | NLM       | Prac 2-5 on 16 <sup>th</sup>       |
| EASTER                 |                                 |          |           |                                    |
| 15 <sup>th</sup> April | VT                              | VT       | VT        |                                    |
| 22th                   | NLM                             | NLM      | NLM       |                                    |
| 29th                   | NLM                             | NLM      | MB        |                                    |
| 6 <sup>th</sup> May    | NLM                             | NLM      | MB        |                                    |
| 13th                   | NLM                             | NLM      | NLM       |                                    |
| 20th                   | NLM/MB                          |          |           |                                    |

#### **Practical Wednesday 2-5** NLM/MB

J302

- Cells and organs of the immune system. 1
- 2 Immunoassays - Qualitative and quantitative
- 3 Pathogenic microbes.
- 4 Visit to a museum – Fleming Museum.

#### LECTURES AND TUTORIALS

A and B lectures Janeway's Immunobiology 8<sup>th</sup> Edition Kenneth Murphy ISBN 978-0-8153-4243-4 (alk. Paper) 2012

#### J = Janeway

#### Feb 5th

- Introduction to the Module, assessment, practicals, Moodel site, references etc А Types of disease
- Infectious disease В

#### **Basic immunology**

#### Feb 12th

A Basic immune systemB ToxinsJ chapter 1Tutorial 1

#### Feb 19th

A Innate immunity – cells and organs linked to practical 1 and 3

B Acquired immunity – cells and organs linked to practical 1 and 3

J chapter 2

Tutorial 2

#### Feb 26th

A Basics of Acquired immunity – clonal selection, immunological memory and immunological tolerance, antibody structure – linked to practical 2

B Bacterial diseases

J chapter 3

Tutorial 3

#### Practical 1 – Cells and organs of the immune system Wednesday J302 2-5pm

#### March 4th

A B cells – antibody structure – linked to practical 2

B T cells

J chapters 9, 10, 11

#### Tutorial 4

#### Practical 2 Immunological techniques J302 2-5pm

#### March 11th

A Immunological methods - ELIZA
B Virus diseases
J appendix 1 – The immunologist's toolbox
Tutorial 5
Practical 3 – Pathogens and antigens Wednesday J302 2-5pm

March 18thApplied immunologyAInfectious diseases – immunological responsesBAllergy - Type 1J chapter 14Tutorial 6Practical 4 – Visit to the Fleming Museum – details to be given

## EASTER

#### April 15th

A and B

T cells and immunotherapy and immunological research at London Southbank University.

#### April 22nd

A and B J chapter 14 Allergy Type 2, Blood grouping, Transfusions

#### April 29th

A Vaccination B Chemotherapy J chapter 16

#### May 6th

A Autoimmunity B Chemotherapy J chapter 15

#### May 13th

A Transplantation
B Examination experience –look at old papers and expected answers
J chapter 15

May20th Revision all staff

#### **Tutorial Programme**

Tutorials 1-6 See tutorial booklet

#### **Tutorial topics**

| 1 | Your disease and vaccination history  |  |  |
|---|---------------------------------------|--|--|
| 2 | Disease and the immune system         |  |  |
| 3 | Tuberculosis                          |  |  |
| 4 | Hepatitis                             |  |  |
| 5 | Nosocomal infections                  |  |  |
| 6 | HIV infection and AIDS: controversies |  |  |

## 7.0 ASSESMENT OF THE UNIT

#### **Assessment Method:**

The unit will assessed by a 2 hour examination (3 out of 6 questions)

Section A of the examination paper will cover the practical classes (1 out 2 questions) Section B 2 out of 4 questions.

A student must achieve a minimum overall unit mark of 40% to pass the unit

In addition students are required to attend the laboratory sessions and keep a record of the experimental work in order to pass this unit.

#### Old examination papers are available on line – go to Moodel site and follow instructions

## 8.0 LEARNING RESOURCES

#### 8.1 CORE MATERIALS

#### Core Text Janeway's Immunobiology 8<sup>th</sup> Edition Kenneth Murphy ISBN 978-0-8153-4243-4 (alk. Paper) 2012

#### **General texts**

Prescott LM, Harley JP & Klein DA. Microbiology, 7th Edition. McGraw Hill

Campbell N. A. Reece J.B. & Mitchell L. G *Biology*, 8<sup>th</sup> Edition. Benjamin/Cummins Web site (www.campellbiology.com)

This is a text for this unit. The suggested reading from this book indicated in the lecture programme will help ensure that you understand the main points. You should already have purchased a copy in the first year.

#### Other useful texts

If you want to investigate an area in more depth, or wish to read an alternative account of a topic you find confusing, consult one of the books described below. All are available in the library (with copies in the key text collection and others available for one-week loan). Don't forget that you can reserve copies if all are out on loan.

#### Good text

Wood. P. Understanding immunology 2nd edition Pearson ISBN 0-13-196845-5 (2006)

Stolley P Laskey T *Investigating Disease Patterns: the science of Epidemiology* WH Freeman/Scientific American Library (1995)

Jones A, Reed R & Weyers J. *Practical Skills in Biology*. Longman Scientific & Technical (1994)

#### NOTES

#### **Moodel site for this unit** Web references will be given out in lectures. Any problems e.g. not on Moodel site email Morgannl@lsbu.ac.uk