

## Infection - Defenses of the body - Year 3 Semester 1

**Credits: 1**

**Duration: 17 Hrs.**

<b>Concept/topic</b>	<b>Objectives</b>	<b>Teaching/ Learning Activity</b>	<b>Time</b>
<b>1. Introduction to the defense system</b>	<ol style="list-style-type: none"><li>1. State the need for a defense system</li><li>2. State how the defense system is divided into two arms; innate and adaptive</li><li>3. State the general features of a naive immune cell and compare it with the features of an effector cell</li><li>4. Define lipid and protein mediators of inflammation, cytokines and chemokines</li><li>5. Describe the process of recruitment of immune cells to the site of infection</li><li>6. Outline the main features of inflammation and explain its role in the defense of the body</li></ol>	Lecture	1
<b>2. Innate immunity</b>	<ol style="list-style-type: none"><li>2. Describe the key features of the innate defenses of the body</li><li>3. Name the cells that are important in the innate immunity</li><li>4. Describe how the cells of the innate immune system identify a pathogen and destroy it</li><li>5. State the different arms of the innate immune mechanism; macrophage and neutrophil mediated killing, NK cell mediated killing and complement mediated killing</li></ol>	Lecture	1
<b>3. Complement and the inflammatory response</b>	<ol style="list-style-type: none"><li>1. Describe the overall arrangement of the complement system</li><li>2. Outline the key steps in complement activation</li><li>3. List the mechanisms of complement mediated killing</li><li>4. Describe the role of complement in the inflammatory process.</li></ol>	Lecture	1

<b>4. Cells and organs of the immune system</b>	<ol style="list-style-type: none"> <li>1. Describe the anatomy and organization of the cells and organs associated with the defenses of the body</li> <li>2. Explain the functional significance of the anatomical arrangement of the cells and organs associated with the defense of the body</li> </ol>	Lecture	1
<b>5. Antigen and the immune response</b>	<ol style="list-style-type: none"> <li>1. Define the term antigen</li> <li>2. Describe the basis of recognition of antigen</li> <li>3. Outline the process by which the response to antigen is amplified</li> </ol>	Lecture SGD	1  1
<b>6. Acquired immunity system and Cellular immunity</b>	<ol style="list-style-type: none"> <li>1. State the key features of the acquired immune system</li> <li>2. State the need for and the basis of the acquired immune system</li> <li>3. Describe the relationship between the innate and acquired immune systems</li> <li>4. Describe the antigen presenting cells and their role in defense</li> <li>5. Describe the migration of antigen presenting cells to regional lymph nodes upon activation.</li> <li>6. Describe the T cell and their role in defense</li> <li>7. Describe the main surface molecules present on T, B and antigen presenting cells.</li> <li>8. Explain the presentation of antigen to the T cell</li> <li>9. Explain the role of the MHC in the immune system</li> <li>10. Describe the process of activation of T and B cells</li> <li>11. Describe the function of helper T cells, cytotoxic T cells and B cells</li> <li>12. Define Th1 and Th2 responses</li> <li>13. Explain the basis of immunological memory</li> </ol>	Lecture SGS	3  1

<b>7. Humoral Immunity</b>	<ol style="list-style-type: none"> <li>1. Describe the structure and function of antibody.</li> <li>2. Explain the primary and secondary immune response</li> <li>3. List the classes of antibody and state the specific function of each class.</li> <li>4. Describe the role of antibody in protection of the body against infective agents.</li> </ol>	Lecture	1
<b>8. Development pathway of cells of the immune system</b>	<ol style="list-style-type: none"> <li>1. State the sources of the cells of the immune system.</li> <li>2. Describe the pathway by which T and B cells mature</li> <li>3. Describe the circulation of lymphocytes</li> </ol>	Lecture	1
	<b>Dysfunction of immune system</b>		
<b>9. Hypersensitivity</b>	<ol style="list-style-type: none"> <li>1. Explain the basis of hypersensitivity reactions</li> <li>2. Briefly describe the 4 types of hypersensitivity</li> </ol>	Lecture	1
<b>10. Autoimmunity and transplant rejection</b>	<ol style="list-style-type: none"> <li>1. Explain the basis of auto immunity</li> <li>2. State with examples how autoimmunity contributes to the disease process</li> <li>3. State different methods available to treat autoimmunity</li> <li>4. Describe the immunological basis for transplant rejection</li> </ol>	Lecture	1
<b>11. Immunodeficiency</b>	<ol style="list-style-type: none"> <li>1. State reasons for failure of the defenses of the body (natural and aquired)</li> <li>2. Classify the immunodeficiency disorders</li> <li>3. Outline the effects of failure of the defenses of the body</li> </ol>	Lecture	1

**Names and departments of the teachers involved in the teaching programme:**

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**Examination Format**

<b>Module</b>	<b>Credits</b>	<b>Total duration of examination</b>	<b>MCQ</b>	<b>SAQ</b>
Infection ó Defences of the Body	1	1 Hr.	½ Hrs	½ Hrs.