

## BS-MS Major in Biology

<b>Semester VII</b>						
<b>Sr. No</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1	BB 607	<a href="#">Immunology</a>	2	1	0	6
2	BB 414	<a href="#">Biology Lab IV</a>	0	0	3	3
3		Program Elective	3	0	0	6
4		Institute Elective -IV	3	0	0	6
5		HSS Elective-II	3	0	0	6
		<b>Total Credits</b>				<b>30</b>

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<b>1</b>	<b>Title of the course (L-T-P-C)</b>	<b>Immunology (2-1-0-6)</b>
<b>2</b>	<b>Pre-requisite courses(s)</b>	<b>Basic Cell biology and Genetics, Microbiology</b>
<b>3</b>	<b>Course content</b>	<ol style="list-style-type: none"><li>1. Introduction, Organization of the immune system (lymphoid tissues and organs).</li><li>2. Immune cell development (hematopoiesis, T and B cell development).</li><li>3. Innate and adaptive immunity (including cellular and humoral responses).</li><li>4. Antigens and Antibodies (antibody classes, Ag/Ab structure and function).</li><li>5. Immune signaling (T cell receptor, TLRs, inflammatory and cytokine responses) and cancer.</li><li>6. The MHC and Ag presentation and T cell development. Immunity mechanisms in disease (allergies, autoimmunity, immuno-deficiency).</li></ol>
<b>4</b>	<b>Texts/References</b>	<ol style="list-style-type: none"><li>1. Judith A. Owen, Jenni Punt, Sharon A. Stranford, Patricia P. Jones., Kuby Immunology, W.H. Freeman and Company, 2013.</li><li>2. Kenneth Murphy , Paul Travers , Mark Walport, Janeway's Immunobiology, Garland Science, Taylor &amp; Francis Group, 200</li></ol>

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1	<b>Title of the course</b> (L-T-P-C)	<b>Biology Lab IV</b> <b>(0-0-3-3)</b>
2	<b>Pre-requisite courses(s)</b>	<b>None</b>
3	<b>Course content</b>	Fluorescence microscopy to examine intracellular compartments, Cell fractionation and centrifugation methods, isolation of intracellular compartments by differential centrifugation techniques, nuclei, cytoplasm etc. Basics of cell culture methods: cell counting, culture media preparation. Proliferation and using live cell imaging and MTT assay, Purification and analysis of Immunoglobulins, Immunoprecipitation, Enzyme-linked immunosorbent assay (ELISA), Fluorescence-activated cell sorting (FACS) and analysis of cells Immunostaining and-imaging.
4	<b>Texts/References</b>	NA