

Virology and Vaccines
Biotechnology Dept. (4th Stage)

by

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Week	Name of lecture
1st week	Introduction to Viruses General Properties of Viruses Terms & Definitions in Virology Evolutionary Origin of Viruses
2nd week	Classification of Viruses Basis of Classification Universal System of Virus Taxonomy Components of viruses
3rd week	Structure of Virus Types of Symmetry of Virus Particles Cubic Symmetry Helical Symmetry Complex Structures Measuring the Sizes of Viruses Comparative Measurements Chemical Composition of Viruses Viral Protein Viral Nucleic Acid

	<p>Viral Lipid Envelopes</p> <p>Viral Glycoproteins</p>
4th week	<p>Assay of Viruses</p> <p>Detection of Virus-Infected Cells</p> <p>Quantitation of Viruses</p> <p>Physical Methods</p> <p>Biologic Methods</p> <p>Purification & Identification of Viruses</p> <p>Purification of Virus Particles</p> <p>Identification of a Particle as a Virus</p>
5th week	<p>Reaction to Physical & Chemical Agents</p> <p>Heat & Cold</p> <p>Stabilization of Viruses by Salts</p> <p>pH, Radiation, Ether Susceptibility</p> <p>Detergents, Formaldehyde, Photodynamic Inactivation, Antibiotics & Other Antibacterial Agents</p> <p>Common Methods of Inactivating Viruses for Various Purposes</p> <p>Replication of Viruses: An</p>

	Overview
6th week	<p>General Steps in Viral Replication Cycles</p> <p>Expression of Viral Genomes & Synthesis of Viral Components</p> <p>Morphogenesis & Release</p> <p>Recombination</p> <p>Complementation</p> <p>Phenotypic Mixing</p>
7th week	<p>Vaccines: introduction</p> <p>Historical overview</p> <p>Immunization</p> <p>Vaccination</p> <p>Properties of ideal vaccines</p> <p>Route of administration</p> <p>Scheme of immunization</p>
8th week	<p>Active immunity</p> <p>Passive immunity</p> <p>Herd immunity</p>
9th week	<p>Vaccines composition</p> <p>Ag, adjuvant, preservative, additives, buffers, surfactants, solvents, manufacturing residuals, diluents</p> <p>Vaccine classification</p> <p>Live attenuated</p> <p>Killed inactivated</p> <p>Subunits and fractional vaccines</p> <p>Recombinant vaccines</p>

<p>10th week</p>	<p>Production of vaccines Generation of Ag Release and isolation of Ag Purification Addition of other components Packaging Vaccines developments</p>
<p>11th week</p>	<p>Examples of vaccines BCG Polio DPT MMR Rota Hemophilus Schedules of vaccination in Iraq</p>
<p>12th week</p>	<p>Cancer vaccines Interferon as vaccine for certain tumors</p>