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Introduction to Virology 80204

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Academic year: 2021-2022 Semester: B Hours: 1.00 / 0.5 credit

Course Overview – Short abstract:

Introduction to the world of the viruses and basic concepts in infection and reproduction of viruses

Grade components: 100% final exam

Week-by-Week content, assignments and reading

Lesson No	Lesson subject
1	<ul style="list-style-type: none">• History of virology• Definition of viruses• Principles of structure and genome of viruses• Criteria for virus classification
2	<ul style="list-style-type: none">• The stages of viral infection: Adsorption, attachment, penetration, uncoating, replication, assembly, maturation and virus release.• Transmission modes.• Cellular receptors that mediate attachment and penetrating of viruses into cells and their importance.
3	<ul style="list-style-type: none">• Mechanisms of replication of viruses with double-stranded DNA and single-stranded DNA. <p>A brief overview of representative families</p>

4	<ul style="list-style-type: none"> ● Mechanisms of replication of viruses with positive polarity RNA genome The poliovirus and coronaviruse as examples ● Mechanisms of replication of viruses with negative polarity RNA genome Influenza virus as an example
5	<ul style="list-style-type: none"> ● Characteristics and mechanisms of replication of the Retroviridae ● HIV and the antiviral drugs used to inhibit its propagation
6	<ul style="list-style-type: none"> ● Assembly and Maturation of viruses. ● Types of viral infections: productive, abortive, latent and persistent. ● Systems for propagation and characterization of viruses (Cell culture, Organ culture, fertilized chicken eggs and model animals), cytopathic effects. ● General concepts: sensitivity and permissiveness. ● Means for quantifying viruses, definition of PFU and MOI, one-stage growth experiment.
7	<ul style="list-style-type: none"> ● Viruses and cancer ● Viruses and gene therapy ● Discussion of the interaction between the viruses and host cells.

Required text:

Wagner EK, Hewlett MJ. (2004) Basic Virology, Second Edition. Blackwell Publishing.

Flint, S.J. Enquist, L.W. et al. (2009/2014, 2020). Principles of Virology. Molecular Biology, Pathogenesis, and Control of Animal Viruses. ASM Press, Washington, D.C.

Leonard C. Norkin. 2010. Virology, Molecular Biology and Pathogenesis. ASM Press, Washington, D.C.