

Viruses, Bacteria & Archaea

I. Viruses

A. What are viruses, and what do they do?

Virus: A non-cellular infectious particle; cannot replicate on its own

Protein coat surrounding genetic material (DNA or RNA)

Requires host cell for replication

B. Examples of viruses

Bacteriophages

Viruses infect plants, animals, bacteria, etc.

Adenoviruses – “naked” viruses

AIDS, measles, rabies – enveloped RNA viruses

Herpesvirus – enveloped DNA virus

C. Viruses as human pathogens

D. Viral replication

5 Steps in replication

Lytic cycle

Lysogenic cycle

Latent state (latency)

Reverse transcription

II. Prokaryotes

A. Classes and characteristics of prokaryotes

1. Domains: Bacteria & Archaea

2. General characteristics of prokaryotes

3. Categorization of prokaryotes

4. Metabolism: Nutrition, energy source and oxygen

Photoautotrophs

Chemoautotrophs

Photoheterotrophs

Chemoheterotrophs

Aerobe vs. anaerobe

5. Structure & function

Cell wall

Nucleoid containing a single circular chromosome

Flagella

Ribosomes

6. Reproduction and gene transfer

Prokaryotic fission

Plasmid

Horizontal gene transfer

BIO 102 General Biology
Lecture Outline

Conjugation
Transduction
Transformation

B. Types of Eubacteria

Thermophiles
Cyanobacteria
Proteobacteria
Gram-positive heterotrophs
Spirochetes & chlamydia

C. Types of Archaeobacteria

Methanogens
Extreme halophiles
Extreme thermophiles