

Session 7 - Microbial Diversity

Text: Chapter 19
Anticipated time: 1-2 class periods
Review Questions: 6, 7, 8.
Thinking Questions: 1.
Basic Objectives: You should be able to discuss contemporary approaches to taxonomy and the characteristics of microorganisms in the various classification systems. You should gain insight into the tremendous diversity of mo's. We will not study the detailed taxonomy or classification of mo's.

Introduction *Read.*

19.1 General Introduction

Review. Define: Taxonomy and Classification.

19.2 Microbial Evolution

Read. Define: Stromatolites. See Fig 19.3. How many Kingdoms are there?

19.3 Taxonomic Ranks

Review. Understand the microbial concept of a Species. Define: Strain.

19.4 Classification Systems

Introduction *Read*

Phenetic... *Skip.*

Numerical... *Skip.*

Phylogenetic... *Read.* Define: Phylogeny.

19.5 Major Characteristics Used in Taxonomy

Introduction *Review.*

Classical... *Read.* *Review* Tab 19.3 and 19.4 for perspective.

Molecular... *Read carefully.* Understand the concepts behind protein comparisons, base composition (G+C content), nucleic acid hybridization (*Read* Fig 19.7) and nucleic acid sequencing, and how these are used in classifying prokaryotes.

19.6 Assessing Microbial Phylogeny

Introduction *Review.*

Molecular... *Read.*

Phylogenetic Trees *Read.*

rRNA, DNA, and... *Read.* Understand how these molecules are used to generate phylogenetic trees.

Polyphasic... *Read.*

19.7 The Major Divisions of Life

Introduction *Review.*

Domains *Read* for concepts. *Review* Tab 19.8.

Kingdoms *Read* for concepts. *Review* Figs 19.11 & 19.12. How many kingdoms are there?

19.8 Bergey's Manual of Systematic Bacteriology

Read the Introduction. *Skip* the rest of the section.

19.9 A Survey of Bacterial Phylogeny and Diversity

Summarize if time permits.

Chapters 20-27 - The Microbial World

We will not cover Chapters 20-27 in any detail. However, these chapters have a wealth of information on specific microorganisms. I recommend you *Read* the 'Concepts' portion at the beginning of each chapter, and then page through the chapter observing the photographs of the various organisms. Your objective should be to gain some perspective on the tremendous diversity of mo's that make up the prokaryotic world. We will discuss the biology of some of these 'bugs' as we progress through our discussions in class.

