

3470 Microbial Systematics
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Course Outline (*Topics may be deleted and new topics may be added*)

I. Introduction

- **Systematics: the characterization and taxonomy of microorganisms**
- **Taxonomy: classification, identification and nomenclature of microorganisms**
- **Characterization of prokaryotes**

2. Phenetic Systems of Bacterial Classification:

- **Traditional classification: Bergey's system**
- **Numerical Taxonomy**

3. Phylogenetic (Phyletic) Classification

- **Hybridization and phyletic relatedness**
- **DNA-DNA hybridization**
- **16S rRNA Sequence Analysis (Woese's phylogeny)**

4. Polyphasic approach to bacterial systematics

5. The Archaea Domain. Physiological groups comprising the Archaea

- 6. The Eubacteria: Relationship between Woese's Phyletic groupings and Bergey's taxa**
- 7. The Purple Bacteria Phylum (Proteobacteria)**
- 8. The Gram-negative Aerobes**
- 9. The Gram-negative Facultative Anaerobes**
- 10. The Gram-negative, Anaerobic, Fermentative Eubacteria: Classification and relatedness to gram-positive phylum**
- 11. The Gram-positive Phylum: Major phyletic groups. Unicellular spore forming species. The high GC gram-positive organisms**