Understand microbial diversity across the tree of life; Compare similarities/differences among the Domains Bacteria and Archaea; Understand the role of the 16S rRNA gene as a proxy for microorganisms & how this is used in research; Describe multiple microbial metabolisms & lifestyles; Describe what is meant by phylogenetic, genomic, metabolic, & lifestyle diversity, and their interdependence; Estimate the relative energetic gain between different metabolisms; Interpret primary literature on microbial metabolism, community analysis, classification & comparative genomics; Rationally classify a microorganism based on 16S rRNA genes, metabolic & genomic properties; Hypothesize about the role of microorganisms in a natural sample based on phylogenetic placement and/or core genome content; Argue for or against the existence of microbial species; Create a Wikipedia entry describing a bacterial or archaeal taxon of your choosing; Interpret the microbial diversity in a natural sample based on 16S rRNA gene data.