

P Grundlagen der Biologie I - Part Microbiology
Teaching Aims FS17

<i>Courseday</i>	<i>Topics</i>	<i>The students...</i>
1	<ul style="list-style-type: none"> - Basics for the work with microorganisms - Isolation of microorganisms from the environment 	<ul style="list-style-type: none"> - know the components of a simple culture medium, the main sterilization methods and a few techniques (surface culture, liquid culture, anaerobic/aerobic culture) for the axenic cultivation of microorganisms (MO) - have learned a few methods for the isolation of MO from the environment - are able to prepare a pure culture of a MO - are aware of the abundance and diversity of MO in the environment - know that bacteria can be hosts of viruses (bacteriophages)
2	<ul style="list-style-type: none"> - Morphology and diagnostics of bacteria - Antimicrobial agents 	<ul style="list-style-type: none"> - have an idea of the size and the morphology of bacteria - know the basic principles and some classical methods for the differentiation between and identification of bacteria - know the different types (secondary metabolites, peptides, proteins) of antimicrobial agents (AA) - know the most significant producers of AA (bacteria, fungi, plants, animals) - know different mechanisms of action of AA and the basis of their specificity - know the ecological and clinical significance of AA
3	<ul style="list-style-type: none"> - Morphology of fungi - Microbial physiology and interactions 	<ul style="list-style-type: none"> - are familiar with the main characteristics of the fungal lifestyle - know the basic morphology of fungi and the basis of their phenotypic differentiation - know that microorganisms communicate with each other and their environment and a few examples how this communication can affect their physiology - know the basic principle for enrichment/selection of specific bacteria - are familiar with the concept of biofilms and its ecological and clinical significance - are aware of the metabolic versatility of microorganisms - know a classical method to quantify microbial gene expression - are aware of the various possibilities of horizontal gene transfer between bacteria and their exploitation for genetic manipulation thereof