

### CB-L3: Advanced techniques for multi-omics data analysis and integration

<b>Person in charge and Representative</b>	Li, Kacprowski and Xu
<b>Contact person</b>	BIOMEDAS Office
<b>Semester</b>	4
<b>Topic cluster</b>	Computational biology
<b>Duration/Credit</b>	10 lectures of 1.5 hours
<b>Time</b>	The exact date incl. time will be announced separately
<b>Place</b>	Online. Dial-in data are sent separately
<b>Prerequisite for the lecture</b>	<p>Mandatory:</p> <ul style="list-style-type: none"> <li>- Lecture: Introduction to bioinformatics data types and analysis techniques</li> </ul> <p>Desirable:</p> <ul style="list-style-type: none"> <li>- Lecture: Introduction to Molecular Data Science</li> <li>- Lecture: Introduction to machine learning and data mining</li> </ul>
<b>Aim of the lecture</b>	<ul style="list-style-type: none"> <li>● Get familiar with different omics datasets, including genetics, epigenetics, RNA seq, proteomics, microbiome and metabolomics etc,</li> <li>● Become aware of the power of data integration in individualized infection and of medicine</li> <li>● Conceptual understanding of data formats for storing and combining data from various sources (data handling)</li> <li>● Learn how to analyze and integrate different types of omics data with biomedically relevant data and derive synergistic insights from data analysis, in particular host genetics, RNA-seq, metabolite, gut microbiome and immune parameters</li> <li>● Learn how to use networks to integrate and analyze different data types.</li> <li>● Visualizing data and the analysis results of various assays</li> </ul>