

<b>Program of Studies:</b>	<b>Master Program Bioinformatics</b>
<b>Name of the module:</b>	<b>Special Lecture Bioinformatics: Processing of Biological Data</b>
<b>Abbreviation:</b>	<b>BI-BM-1</b>
<b>Subtitle:</b>	-
<b>Modules:</b>	Lecture: 2 h (weekly) Tutorial: 1 h
<b>Semester:</b>	1st – 3rd semester; every third semester
<b>Responsible lecturer:</b>	Prof. Dr. Volkhard Helms
<b>Lecturer:</b>	Prof. Dr. Volkhard Helms
<b>Language:</b>	English
<b>Level of the unit/ Mandatory or not :</b>	Graduate course / mandatory elective
<b>Course type/weekly hours:</b>	Lecture: 2 h (weekly) Tutorial: 1 h (weekly)
<b>Total workload:</b>	150 h = 48 h of classes and 102 h private study and assignments
<b>Credits:</b>	5
<b>Entrance requirements:</b>	Intermediate programming skills in Python
<b>Aims/Competences to be developed:</b>	
<b>Content:</b>	<ul style="list-style-type: none"> <li>- clustering of data</li> <li>- principal component analysis</li> <li>- differential expression analysis</li> <li>- removal and correction of data outliers; prediction of missing values; BEclear method</li> <li>- processing of proteomics data; imputation of missing values</li> <li>- peak assignment</li> <li>- protein structure data (Protein DataBank); thermal mobility; titration states; hydration sites; PDBcheck</li> <li>- molecular dynamics simulations; time correlation of snapshots;</li> <li>- analysis of multi-dimensional data</li> </ul>
<b>Assessment/Exams:</b>	Written Exam
<b>Used media:</b>	Power point slides of lectures are accessible at course website <a href="https://www-cbi.cs.uni-saarland.de/teaching/ws-1819/special-topic-lecture-bioinformatics-processing-of-biological-data/">https://www-cbi.cs.uni-saarland.de/teaching/ws-1819/special-topic-lecture-bioinformatics-processing-of-biological-data/</a>
<b>Literature:</b>	will be indicated during the lecture