

Segment 2 (Semester 3-5)

Protein Downstream Processing (Laboratory Course)

Description	
Objective	In this practical course natural and recombinant proteins from various sources are purified using chromatographic and filtration techniques. Students learn to pack columns, check column quality, operate chromatography and cross flow filtration systems and analyse the progress of protein purification.
Prerequisites	Protein Downstream Processing (Lecture)
Content	<ol style="list-style-type: none"> 1. Purification of recombinant green fluorescent protein (GFP) by Ni-IMAC manually and using an automated chromatography system. 2. Design of a multi-step purification strategy for a given <i>S. cerevisiae</i> enzyme. Cell disruption, preparation of clarified extract, ion exchange, hydrophobic interaction, affinity and size exclusion chromatography, analysis of purity, protein content and activity. Groups research literature and plan process accordingly on their own. 3. Optimization of dynamic capacity of a mixed-mode column. Planning and evaluation supported by the DoE-software "Modde" (combined activity with bioinformatics course)
Course material	<ul style="list-style-type: none"> – Lecture presentation – Desai, Mohamed A. [Hrsg.]: Downstream processing of proteins: methods and protocols, Humana Press, 2000; ISBN 0-89603-564-6 – GE Healthcare manuals for protein purification (available via ILIAS as pdf-files)
Language	German <input type="checkbox"/> English <input checked="" type="checkbox"/>
Media	Presentation <input checked="" type="checkbox"/> Blackboard <input checked="" type="checkbox"/>
Time schedule	Weekly <input type="checkbox"/> Block schedule <input checked="" type="checkbox"/>
Cycle	Each semester <input checked="" type="checkbox"/> Annually <input type="checkbox"/>
Status	Compulsory subject <input checked="" type="checkbox"/> Compulsory optional subject <input type="checkbox"/>
Last modified	07.10.2013