

<b>Level:</b> bachelor				
<b>Course title:</b> Chemo-enzymatic transformations (IB-407)				
<b>Status:</b> elective				
<b>ECTS:</b> 5				
<b>Requirements:</b> none				
<b>Learning objectives</b> Approaches to complex carbohydrate molecules and their mimetics are facilitated using enzymatic and chemo-enzymatic transformations. This will allow students to better understand the important processes in glycobiology such as receptor-mediated recognition and processing of glycoproteins.				
<b>Learning outcomes</b> Upon successful completion of this course, the student should be able to: <ul style="list-style-type: none"> <li>• Define and justify the application of enzymes <i>in vitro</i> synthetic conditions.</li> <li>• Explain the receptor-mediated recognition of glycobiology and glycoprotein processing.</li> <li>• Master the basic knowledge about the types and mechanisms of individual enzymatic processes that can be accomplished <i>in vitro</i>.</li> </ul>				
<b>Syllabus</b> <i>Theoretical instruction</i> Aldol condensation with aldolases: dihydroxyacetone phosphate-dependent aldolase, phosphoenolpyruvate and pyruvate-dependent aldolase, 2-deoxyribose-5-phosphate aldolase and glycine- dependent aldolase. Enzymatic glycosylations: glycosidases and glycosyltransferases. Application of lipases, proteases and oxidoreductases for preparation of chiral starting compounds. Catalysis of specific functional group transformations.  <i>Practical instruction</i> In accordance with theoretical instruction.				
<b>Weekly teaching load</b>				<b>Other:</b>
Lectures: 2	Exercises: 2	Other forms of teaching:	Student research:	