### Title of module
Glycobiology

### Term/semester
Winter term / 1

### VAK-Number
Will be assigned centrally

### Credit points
9 ECTS

### Compulsory/ elective course
Elective course within module B

#### Teaching methods

<table>
<thead>
<tr>
<th>Method</th>
<th>SWS</th>
<th>CP</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>0.5 (7 h)</td>
<td>0.5</td>
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<tr>
<td>Exercises</td>
<td>3.0 (42 h)</td>
<td>2.5</td>
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<tr>
<td>Seminar</td>
<td>2.0 (28 h)</td>
<td>3.0</td>
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<tr>
<td>Lab course</td>
<td>5.0 (70 h)</td>
<td>3.0</td>
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### Self studies

- Protocols: 20 h
- Preparation of poster: 40 h
- Preparation of the talk: 70 h

### Module representative
Prof. Sørgel Kelm

### Instructor
Prof. Sørgel Kelm (Biochemistry)

### Examiner
Prof. Sørgel Kelm

### Objectives
The objectives of this course are to provide
- a basic understanding of concepts in the area of glycobiology, the structures, biosynthesis and function of complex carbohydrates
- develop the practical skills of experimental work with glycoconjugates.

### Content of teaching
Protein glycosylation in eukaryotic cells is one of the most common forms of post-translational modification, and carbohydrates on glycoproteins and glycolipids are involved in pleiotropic biological functions.

Theoretical part of the course will be covered in lectures and seminars:
- Principles of glycobiology
- Structures of complex carbohydrates
- The glycosylation process in eukaryotic cells
- Carbohydrate-binding proteins
- The impact of carbohydrates in important biological functions
- The use of carbohydrates and glycoproteins in biomedicine

The following techniques will be applied in the practical part of the course:
- Experimental approaches addressing scientific questions in glycobiology
- Recombinant purified lectins will be used for interaction studies.
- Analytical methods (chromatography, FACE, mass spec) used to characterise carbohydrates.

### Learning results
- Ability to comprehensively understand contents of glycobiology covering the above topics in the context of cell biology and biochemistry.
- Capacity to perform the methods used in the course.
- Competence to develop a strategy and experiments addressing questions in the area of glycobiology.
- Competence to present and discuss a project addressing a scientific question within glycobiology.

### Control of the learning progress
Lab protocols, poster presentation, seminar presentation

### Grading
Lab protocol (30%); poster presentation (30%); seminar presentation (40%)

### Frequency
Each winter term

### Use in other study courses
Open to students of other M.Sc. courses in biology and chemistry

### Requirements
Basic biochemistry in theory and practice