## Module title
Molecular Biology

### Abbreviation
07-MS2-171-m01

### Module coordinator
Dean of Studies Biologie (Biology)

### Module offered by
Faculty of Biology

### ECTS
10

### Method of grading
Numerical grade

### Duration
1 semester

### Module level
Graduate

### Other prerequisites
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## Contents
Molecular biology of the eukaryotic and prokaryotic cell. The lecture is a joint activity of the Chairs of Cell- and Developmental Biology, Microbiology, Biophysics and Bioinformatics and deals with concepts of modern molecular biology from the point of view of these different disciplines. Participants are recommended to read the textbook "Essential Cell Biology". The section on cell biology (approx. a quarter of the lecture) mainly discusses the eukaryotic cell and intends to elucidate the vast diversity in structure and function of molecules, organelles and cells in addition to fundamental principles of modern molecular cell biology. The bioinformatics section (app. a quarter of the lecture) contains a large amount of examples for applications which allow the investigation of the molecular biology of a cell with bioinformatic tools. We closely adhere to the contents of the book "Essential Cell Biology" and present many clear and useful examples for the application of our tools when working on the topics of the other three Chairs. Our vision: bioinformatics essentially is molecular biology based on computing technology (time consuming "wet" experiments can be planned more easily and thus bioinformatics saves precious time). The microbiological section (app. a quarter of the lecture) deals with fundamental molecular aspects of prokaryotic cells. Key aspects include the organisation of the bacterial genome, the transcription and translation machinery, mechanisms of regulation of gene expression, transport of small molecules and macromolecules, cell division and differentiation, bacterial motility and chemotaxis, signal transduction and bacterial communication mechanisms. Recommended reading: (a) Allgemeine Mikrobiologie (Fuchs) and (b) Biology of Microorganisms (Brock).

## Intended learning outcomes
Master level knowledge about the molecular biology of the eukaryotic and prokaryotic cell.

## Courses

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<tr>
<th>Type</th>
<th>Number of weekly contact hours</th>
<th>Language (if other than German)</th>
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<tr>
<td>V</td>
<td>3</td>
<td>German and/or English</td>
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## Method of assessment

- Written examination (approx. 60 to 120 minutes).
- If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).

Language of assessment: German and/or English

## Allocation of places

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## Additional information

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## Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module appears in

keinem Studiengang zugeordnet