

<b>Module title</b>		<b>Abbreviation</b>
Bioorganic Chemistry		o8-SCM3-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>
lecturer of lecture "Bioorganische Chemie" (Bioorganic Chemistry)		Institute of Organic Chemistry
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
5	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	graduate	--
<b>Contents</b>		
<p>Bioorganic chemistry unites the central questions of organic chemistry, biochemistry, medicinal chemistry and spectroscopy with a focus on biomolecules. At the core of bioorganic chemistry is the synthesis and purposeful manipulation of biomolecules, such as nucleic acids, peptides, proteins, carbohydrates and lipids. This includes the framework of structure-function relationships and the fundamental understanding of biological mechanisms, to enable applications towards biomaterials, biosensing, bioimaging, clinical diagnostics and therapeutics.</p> <p>Key concepts covered in the course are nucleic acid chemistry, peptide chemistry, carbohydrate chemistry, biorthogonal reactions, molecular diversity, solid-phase synthesis, molecular recognition and interactions (ligand-receptor interactions, signal transduction)</p>		
<b>Intended learning outcomes</b>		
<p>The students will have a molecular understanding of the structure and reactivity of biomolecules. The students obtain knowledge of modern synthetic methods in bioorganic chemistry and can explain principles of molecular interactions and recognition mechanisms. They can describe modern aspects of nucleic acids, proteins, carbohydrates and lipids.</p>		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
S (3)		
<b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
<p>a) written examination (approx. 45 to 90 minutes) or          b) oral examination of one candidate each (20 to 30 minutes) or          c) oral examination in groups of up to 3 candidates (15 to 30 minutes per candidate)          Language of assessment: German and/or English</p>		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
<p>Master's degree (1 major) Biochemistry (2015)          Master's degree (1 major) Chemistry (2016)          Master's degree (1 major) Functional Materials (2016)          Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)</p>		

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)  
Master's degree (1 major) Biochemistry (2017)  
Master's degree (1 major) Chemistry (2018)  
Master's degree (1 major) Biochemistry (2019)  
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Master's degree (1 major) Functional Materials (2022)  
Master's degree (1 major) Chemistry (2024)  
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)  
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)  
Master's degree (1 major) Functional Materials (2025)