

<b>Module title</b>		<b>Abbreviation</b>
Modern Drug Research 1: Basics and Drug Design		o8-MCM3-242-m01
<b>Module coordinator</b>		<b>Module offered by</b>
lecturers of Pharmaceutical Chemistry		Institute of Pharmacy and Food 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>Fundamentals: Phases of drug development, principles of drug action, pharmacokinetics and biotransformation; strategies of drug discovery, drug targets, chemical space of drug discovery, protein-ligand interactions, structure-activity-relationships (SAR), bioisosterism, prodrug strategies.</p> <p>Experimental methods: binding assays, enzymatic assays, biophysical methods, high-throughput-screening (HTS).</p> <p>Theoretical methods and drug design: virtual screening, ligand-based methods, QSAR, pharmacophore models, structure-based drug design, docking, simulation methods, machine learning (AI).</p> <p>Case studies (drug discovery, design and optimization)</p>		
<b>Intended learning outcomes</b>		
<p>The students master the fundamentals of drug development, the strategies of drug discovery and the applied theoretical and experimental methods. They can understand and critically question the essential content of current scientific publications in drug research. They are able to carry out a basic virtual screen and to evaluate its results.</p>		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
S (2) + Ü (1) Module taught in: German or English		
<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) presentation (approx. 30 minutes) or b) written examination (approx. 45 to 90 minutes) Language of assessment: German and/or English</p>		
<b>Allocation of places</b>		
<p>22 places. 16 places for students of the Master's degree programme Chemie (Chemistry): Places will be allocated according to the same number of subject semesters; students who have chosen Medizinische Chemie (Medicinal Chemistry) as their focus will be given preferential consideration. 6 places for students of the Master's degree programme Biochemie (Biochemistry): Places will be allocated according to the number of subject semesters; among applicants with the same number of subject semesters, places will be allocated by lot. 2 places for students of the Master's degree programme MINT-Lehramt PLUS: Places will be allocated according to the number of subject semesters; among applicants with the same number of subject semesters, places will be allocated by lot ; a waiting list will be maintained and places re-allocated by lot as they become available.</p>		
<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Master's degree (1 major) Chemistry (2024)