Modulbezeichnung:	Drug discovery (MSM-life) (Drug discovery)	30 ECTS
Modulverantwortliche/r:	Peter Gmeiner	
Lehrende:	Peter Gmeiner, Markus Heinrich, Jürgen Schatz, u.a., Andreas Burkovski, Jutta Eichler, Harald Lanig	

Startsemester: SS 2018	Dauer: 2 Semester	Turnus: halbjährlich (WS+SS)
Präsenzzeit: 450 Std.	Eigenstudium: 450 Std.	Sprache: Englisch

Lehrveranstaltungen:

Mandatory courses: Seminars:
Drug Discovery-Seminar (7SEM)
Drug Discovery-Laboratory course (23LAB):
10 week block lab project in one of the participating research groups (Profs. Burkovski, Burzlaff, Eichler, Gmeiner, Heinrich, Ivanovic-Burmazovic, Koch, Lanig, Muller, Nitschke, Schatz, Stadler, Winkler, Zahn)
with
Seminar Research projects (1S): oral presentation (20 min, plus discussion)
Seminar Journal club (group seminar in one of the re- search groups)(2S)
Drug Discovery Praktikum (SS 2018, Praktikum, 23 SWS, Peter Gmeiner et al.)
Drug Discovery Seminar (SS 2018, Seminar, 7 SWS, Andreas Burkovski et al.)
Drug Discovery Praktikum (WS 2018/2019, Praktikum, 23 SWS, Peter Gmeiner et al.)
Drug Discovery Seminar (WS 2018/2019, Seminar, 7 SWS, Andreas Burkovski et al.)

Empfohlene Voraussetzungen:

Admission to the M. Sc. program Molecular Science or Chemistry

Inhalt:

Drug Discovery-SEMINAR

Genomics, transcriptomics, proteomics; in-vitro assay systems, assay technology; target screening and drug production in plants, drug screening and production in yeast; experimental structural biology; chemoinformatics; molecular modeling: molecular dynamics simulation, force-fields, modeling of proteins, proteinligand docking; drug synthesis and combinatorial chemistry; redox-active metal complexes, metalloenzyme inhibitors; stereochemistry in drug design; organic reactions in medicinal chemistry; drug metabolism; peptidomimetics;

LAB Course

Project course: Lab projects focusing on the modern research issues in one of the participating research groups. Seminar research projects: students reports on lab projects. Discussions on recent publications in the field of drug discovery (within the respective research units).

Lernziele und Kompetenzen:

The students are able

- to understand the basic and advanced principles of medicinal chemical, molecular biological and computer
- chemistry based applications in the field of modern drug design research
- to utilize modern experimental techniques to prepare and characterize various samples with in the lab project
- to apply modern simulation techniques for the modeling of proteins
- to interpret and to critically summarize experimental results in written form (lab report), and to present and discuss these results within the research group or in front of a student audience
- to participate in planning, developing and executing of experimental routes for the synthesis of drugs
- to judge and to discuss in oral form their research results in the field of drug discovery in comparison to recent publications.

Literatur:

Manuscripts are available on **StudON**,
additional reading, e.g. G. Klebe, Drug Design: Methodology, Concepts, and Mode-of-Action, Springer 2013

Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

[1] **Molecular Science (Master of Science)**
(Po-Vers. 2007 | NatFak | Molecular Science (Master of Science) | alte Prüfungsordnungen | Masterprüfung | Pflichtmodul Molecular Science)

[2] **Molecular Science (Master of Science)**
(Po-Vers. 2013 | NatFak | Molecular Science (Master of Science) | Pflichtmodul Molecular Science)

Studien-/Prüfungsleistungen:

Drug Discovery (Prüfungsnummer: 30702)
(englische Bezeichnung: Drug Discovery)

Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 45
Anteil an der Berechnung der Modulnote: 100%
weitere Erläuterungen:
Assessment and examinations Portfolio: PL Oral examination (O 45min, 3 examiners) LEC (PL) LAB (PL, AP) Lab course protocol (without explicite mark) + oral presentation of research project (20 min + discussion);
Calculation of the grade for the module: PL: O45 (66 %) LEC (PL) (17 %) LAB (PL, AP) (17 %)
Prüfungssprache: Englisch

Erstablegung: WS 2018/2019, 1. Wdh.: SS 2019
1. Prüfer: Peter Gmeiner
1. Prüfer: Jürgen Schatz
1. Prüfer: Jutta Eichler
1. Prüfer: Markus Heinrich

Organisatorisches:

Intended stage in the degree course: Mandatory module for M.Sc. Molecular Lifescience semester 1 and 2
Frequency of offer: Annually / start of studies is strongly recommended in winter term
Workload: 900 hours (includes 450 hours private studies and 50 contact hours)

Bemerkungen:

Courses of study for which the module is acceptable: M.Sc. Molecular **Lifescience**