
Modulbezeichnung: Drug discovery (MSM-life) **30 ECTS**
 (Drug discovery)

Modulverantwortliche/r: Peter Gmeiner

Lehrende: Jutta Eichler, Kristina Friedland, Tim Clark, Markus Heinrich, Peter Gmeiner, Jürgen Schatz, u.a., Andreas Burkovski

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|-----------------------------|------------------------|------------------------------|
| Startsemester: WS 2016/2017 | 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 (attendance in lab course is compulsory!)
 with

Seminar Research projects (1S): oral presentation (20 min, plus discussion)

Seminar Journal club (group seminar in one of the research groups)(2S)

Drug Discovery Praktikum (WS 2016/2017, Praktikum, 23 SWS, Tim Clark et al.)

Drug Discovery Seminar (WS 2016/2017, Seminar, 7 SWS, Andreas Burkovski et al.)

Drug Discovery Praktikum (SS 2017, Praktikum, 23 SWS, Andreas Burkovski et al.)

Drug Discovery Seminar (SS 2017, Seminar, 7 SWS, Andreas Burkovski et al.)

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. 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: PL Oral examination (O 45min, 3 examiners), LEC (PL), LAB (PL)*

*Lab course protocol (without explicit mark) + oral presentation of research project (20 min + discussion);

Calculation of the grade for the module: PL: O45 (66 %), LEC (PL) (17 %), LAB (PL) (17 %)

Prüfungssprache: Englisch

Erstablingung: SS 2017, 1. Wdh.: WS 2017/2018

1. Prüfer: Peter Gmeiner

1. Prüfer: Jürgen Schatz

1. Prüfer: Jutta Eichler

1. Prüfer: Markus Heinrich

1. Prüfer: Kristina Friedland

Organisatorisches:

Frequency of offer: Annually / start of studies is strongly recommended in winter term

Bemerkungen:

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