

**Modulbezeichnung:** ILS-MA-I2A: Interaction of Biological Macromolecules **5 ECTS**  
**A (ILS-MA-I2A)**  
 (ILS-MA-I2A: Wechselwirkungen von Biologischen Macromolekülen  
 A)

Modulverantwortliche/r: Yves Muller

Lehrende: Petra Dietrich, Heinrich Sticht, Yves Muller, Jutta Eichler

Startsemester: WS 2022/2023

Dauer: 1 Semester

Turnus: jährlich (WS)

Präsenzzeit: 60 Std.

Eigenstudium: 90 Std.

Sprache: Englisch

### Lehrveranstaltungen:

ILS-MA-I2A: Interactions at biological macromolecules (WS 2022/2023, Vorlesung, Yves Muller et al.)

### Empfohlene Voraussetzungen:

none

### Inhalt:

**Lectures and Tutorials** cover topics of interactions between biological macromolecules extending from protein-protein to protein-DNA and protein-ligand interactions. The following topics will be discussed: Energetic and thermodynamic contributions, the description of structural determinants, the use of homology modelling, the prediction of contiguous and non-contiguous interaction sites in proteins, experimental methods for studying interactions, the analysis of interaction surfaces via peptide mapping as well as selected examples of protein interactions involved in plant signalling networks.

### Lernziele und Kompetenzen:

The students will

- acquire an in-depth knowledge of structure-function relationships in interacting macromolecules
- be able to assess the suitability of current experimental methods such as X-ray crystallography, NMR, peptide mapping, ITC and SPR for studying protein-protein and protein-ligand interactions.
- become familiar with bioinformatics methods to predict and analyse interactions between biological macromolecules.
- gain fundamental knowledge in plant signalling networks
- be able to present and critically discuss current research articles
- be able to discuss their results and defend their conclusions in proper context
- extended their capacity for teamwork and their communication as well as social competence

### Literatur:

none

### Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

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

#### [1] Integrated Life Sciences: Biology, Biomathematics, Biophysics (Master of Science)

(Po-Vers. 2015w | NatFak | Integrated Life Sciences: Biology, Biomathematics, Biophysics (Master of Science) | Module Groups | MG3: Biological Structures and Processes | Interactions of Biological Macromolecules A)

#### [2] Integrated Life Sciences: Biology, Biomathematics, Biophysics (Master of Science)

(Po-Vers. 2019w | NatFak | Integrated Life Sciences: Biology, Biomathematics, Biophysics (Master of Science) | Module Groups | MG3: Biological Structures and Processes | Interactions of Biological Macromolecules A)

### Studien-/Prüfungsleistungen:

Interactions of Biological Macromolecules A (Prüfungsnummer: 81211)

Prüfungsleistung, mehrteilige Prüfung

Anteil an der Berechnung der Modulnote: 100%

weitere Erläuterungen:

PL: written exam 90 min. SL: exercise sheets

Erstablingung: WS 2022/2023, 1. Wdh.: SS 2023

1. Prüfer: Böckmann/Muller (N40002)

