

Module Handbook (<https://modhb.uni-kl.de/>)

[TUK \(https://www.uni-kl.de\)](https://www.uni-kl.de) [MODHB \(https://modhb.uni-kl.de/\)](https://modhb.uni-kl.de/) [Homepage \(/\)](#)

Notes on the module handbook of the department Biology

The below displayed informations on the courses of study, modules and courses of the department of Biology are still under construction. Till this process will be finished please use our module handbooks on

<https://www.bio.uni-kl.de/studium-lehre/studiengaenge/> (<https://www.bio.uni-kl.de/studium-lehre/studiengaenge/>)

Module BIO-TM1-4_6-M-5

Theoretical Module 1-4: Lecture and Reading Course - Protein Biophysics (M, 3.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
BIO-TM1-4_6-M-5	<i>Theoretical Module 1-4: Lecture and Reading Course - Protein Biophysics</i>	3.0 CP (90 h)

Basedata

CP, Effort	3.0 CP = 90 h
Position of the semester	1 Sem. in SuSe
Level	[5] Master (Entry Level)
Language	[EN] English
Module Manager	Frankenberg-Dinkel, Nicole, Prof. Dr. (PROF DEPT: BIO) (/staff/89/)
Lecturers	Frankenberg-Dinkel, Nicole, Prof. Dr. (PROF DEPT: BIO) (/staff/89/)
Area of study	[BIO-MBP] Molecular Biophysics
Reference course of study	[BIO-88.Z10-SG] M.Sc. Biology (/mhb/FB-BIO/cos-582/)
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
S	BIO-MBP-02-K-5 (/mhb/courses/BIO-MBP-02-K-5/)	P	TEILN	PL1	3.0	SuSe

- About [BIO-MBP-02-K-5]: Title: "Lecture & Reading Course: Protein Biophysics"; Presence-Time: 16 h; Self-Study: 74 h

- About [BIO-MBP-02-K-5]: The study achievement [TEILN] **continuous and active participation in the courses** must be obtained.

Examination achievement PL1

- Form of examination: **written exam (Klausur) (60-90 Min.)**
- Examination Frequency: each summer semester

Evaluation of grades

The grade of the module examination is also the module grade.

Contents

From [BIO-MBP-02-K-5] **Lecture & Reading Course: Protein Biophysics** (/mhb/courses/BIO-MBP-02-K-5/):

- The students will hear introductory and summary lectures, read book chapters as well as research and review papers, work on specific problems (exercises), and discuss together and with the teacher the following topics: Protein structure, dynamics, and function. Evolutionary variations in proteins. Molecular recognition and specificity. Protein-protein and protein-ligand interactions. Allostery. Enzyme catalysis. Membrane proteins and transport processes. Recombinant production and chromatographic purification of proteins. Biophysical and biochemical methods for protein characterization.

Competencies / intended learning achievements

Professional competence:

- Explaining the properties and functions of proteins on the basis of their structures and dynamics.
- Understanding the molecular basis underlying intermolecular interactions (including target binding and inhibition), enzyme catalysis, and protein-mediated membrane transport.
- Gaining the ability to extend these concepts to biotechnological and biomedical applications of proteins.
- Reading and interpreting current research papers and reviews about this topic. Understanding in vitro approaches to proteins.

Methodological competence: ---

Social competence:

- Learning to discuss scientific issues with other students and the teacher and explaining complex concepts.
- Learning to simplify complicated topics and ideas and to identify their key aspects.

Self-competence:

- Acquisition of scientific knowledge by self-responsible reading of English research literature, and identifying points that require further explanation.
- Solving problems and critical evaluation of current research data.

Intended Learning Outcomes:

On successfully completing the module students will be able to...

- improve their knowledge in the field of protein biophysics.
- read and understand specialist English literature (research papers and reviews).
- summarize and discuss orally research papers.

Literature

From [BIO-MBP-02-K-5] Lecture & Reading Course: Protein Biophysics (/mhb/courses/BIO-MBP-02-K-5/):

Will be provided at or prior to the beginning of the course

Materials

Will be provided at or prior to the beginning of the course

Requirements for attendance (informal)

Bachelor-grade knowledge in molecular biology, genetics, botany, plant physiology, plant pathology

Requirements for attendance (formal)

References to Module / Module Number [BIO-TM1-4_6-M-5]

Course of Study	Section	Choice/Obligation
[BIO-88.Z10-SG] M.Sc. Biology (/mhb/FB-BIO/cos-582/)	Theoretical Modules 1-4: Lectures and Reading Courses	[P/WP] Compulsory or compulsory elective (depending on the chosen specialization / study profile)