Modulbezeichnung:	**Bio(in)organic chemistry (CME3)** (Bio(in)organic chemistry)	**15 ECTS**
Modulverantwortliche/r:	Nicolai Burzlaff	
Lehrende:	Andriy Mokhir, Norbert Jux, Frank Wilhelm Heinemann, Ivana Ivanovic-Burmazovic, Nicolai Burzlaff, Karsten Meyer, Carola Kryschi, Olaf Prante	

Startsemester: SS 2020	Dauer: 2 Semester	Turnus: halbjährlich (WS+SS)
Präsenzzeit: 195 Std.	Eigenstudium: 255 Std.	Sprache: Englisch

Lehrveranstaltungen:

A) Bioinorganic chemistry 1, metalloenzymes and metals in medicine (2L, 1S)

Bioinorganic Chemistry I, Metalloenzymes and Metals in Medicine (SS 2020, Vorlesung, 2 SWS, Nicolai Burzlaff)

Seminar Bioinorganic I, Bioinorganic Reaction Mechanisms (SS 2020, Seminar, 1 SWS, Nicolai Burzlaff et al.)

B) Advanced Bioinorganic Chemistry (2L)

choice of 1 course from

B1: Bioinorganic chemistry II, oxidative stress, spectroscopy and electrochemistry (2L)

B2: Metallic nanoparticles in medicine

B3: Crystal structure determination

(**B4:** Bioinorganic chemistry III, electron transfer, photochemistry, PDT, diagnostics and metal DNA interactions - **please note: this course is no longer offered in winter term 2020/21!**)

Bioanorganische Chemie II, Chemie des oxidativen Stresses, Spektroskopie und Elektrochemie an Bioanorganischen Systemen (SS 2020, Vorlesung, 2 SWS, Ivana Ivanovic-Burmazovic)

Metallic Nanoparticles in Medicine (SS 2020, Vorlesung, 2 SWS, Carola Kryschi)

Modern X-ray structure determination of single crystals/Einführung i. d. Kristallstrukturbestimmung von Molekülverbindungen (SS 2020, Vorlesung mit Übung, 2 SWS, Frank Wilhelm Heinemann et al.)

C) Special aspects in bioinorganic chemistry (1S)

Special aspects in bioinorganic chemistry - Seminar (SS 2020, Seminar, 1 SWS, Nicolai Burzlaff et al.)

D) Lab course bioinorganic chemistry (7LAB)

Attendance in lab course is compulsory!

Bioinorganic Chemistry - Lab Course (SS 2020, Praktikum, 7 SWS, Nicolai Burzlaff et al.)

Inhalt:

The student

- is lead to recent research goals and achievements in the field of bioinorganic chemistry.
- evaluates and assesses the basic theories, principles and concepts of bioinorganic chemistry in compliance with a research oriented master course.
- deepens his knowledge in special topics of bioinorganic chemistry that are in the research focus of the involved research groups of the department depending on its own choice.
- performs practical studies and small research projects regarding topics of the preparative, mechanistic or more biological bioinorganic chemistry in an advanced level.

Lernziele und Kompetenzen:

The student

- can explain and apply basic theories and principles, as well as specialized and in-depth knowledge in the fields of metalloenzymes and the interaction of metals with DNA and RNA.
- can explain, apply and reflect upon the inorganic chemistry aspects in medicinal chemistry and toxicology.
- can explain, apply and reflect upon the theories, terminology, specialities, boundaries and different schools of bioinorganic chemistry critically and in depth.
- can manage the preparation of bioinorganic models, their characterization as well as their application in mechanistic studies.
- can carry out bioinorganic research projects largely independently using a wide range of bioinorganic theories and is able to reflect upon the gained results.

Literatur:

An updated list is given by the lecturer at the beginning of each course

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Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

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

[1] **Chemie (Master of Science): 1-3. Semester**
(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlpflichtmodul | Bioanorganische Chemie)

[2] **Chemie (Master of Science): 1-3. Semester**
(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlmodul | Bioanorganische Chemie)

Studien-/Prüfungsleistungen:

Bioanorganische Chemie (Prüfungsnummer: 65501)
(englische Bezeichnung: Oral Examination or Examination (Klausur) on Bioinorganic Chemistry)

Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 45
Anteil an der Berechnung der Modulnote: 100%
weitere Erläuterungen:
O45 (PL): oral examination 45 min, 2 examiners,
EX (SL), EX (SL), LAB (SL)
Prüfungssprache: Englisch

Erstablegung: WS 2020/2021, 1. Wdh.: SS 2021
1. Prüfer: Nicolai Burzlaff

Organisatorisches:

Grading procedure: Result of the oral examination (100%)

Bemerkungen:

Module compatibility: M. Sc. Chemie (Mandatory elective module or Elective module) / M. Sc. Molecular Science (Elective module)