
Modulbezeichnung: **Bio(in)organic chemistry (CME3)** **15 ECTS**
 (Bio(in)organic chemistry)

Modulverantwortliche/r: Nicolai Burzlaff

Lehrende: Karsten Meyer, Olaf Prante, Carola Kryschi, Ivana Ivanovic-Burmazovic, Norbert Jux,
 Frank Wilhelm Heinemann, Andriy Mokhir, Nicolai Burzlaff

Startsemester: SS 2019

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 (WS 2019/2020, Vorlesung, 2 SWS, Nicolai Burzlaff)

Seminar Bioinorganic I, Bioinorganic Reaction Mechanisms (WS 2019/2020, 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

Bioanorganische Chemie II, Chemie des oxidativen Stresses, Spektroskopie und Elektrochemie an Bioanorganischen Systemen (SS 2019, Vorlesung, 2 SWS, Ivana Ivanovic-Burmazovic)

Metallic Nanoparticles in Medicine (SS 2019, Vorlesung, 2 SWS, Carola Kryschi)

Modern X-ray structure determination of single crystals/Einführung i. d. Kristallstrukturbestimmung von Molekülverbindungen (SS 2019, Vorlesung mit Übung, 2 SWS, Frank Wilhelm Heinemann et al.)

Bioanorganische Chemie III (WS 2019/2020, Vorlesung, 2 SWS, Nicolai Burzlaff et al.)

C) Special aspects in bioinorganic chemistry (1S)

Special aspects in bioinorganic chemistry - Seminar (SS 2019, Seminar, 1 SWS, Nicolai Burzlaff et al.)

Seminar Special Aspects of Bioinorganic Chemistry (WS 2019/2020, Seminar, 1 SWS, Nicolai Burzlaff et al.)

D) Lab course bioinorganic chemistry (7LAB)

Attendance in lab course is compulsory!

Bioinorganic Chemistry - Lab Course (SS 2019, Praktikum, 7 SWS, Nicolai Burzlaff et al.)

Lab Course Bioinorganic Chemistry (WS 2019/2020, 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.

Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

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

[1] Chemie (Master of Science): 1-2. Semester

(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlpflichtmodul | 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, 2 examiners (PL)

EX (SL)

EX (SL)

LAB (SL)

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

Prüfungssprache: Englisch

Erstablingung: WS 2019/2020, 1. Wdh.: SS 2020

1. Prüfer: Nicolai Burzlaff

Bemerkungen:

Module compatibility: M. Sc. Chemie/ M. Sc. Molecular Science (Elective Module)