

<b>Modulbezeichnung:</b> Bio(in)organic chemistry (CME3) (Bio(in)organic chemistry)	<b>15 ECTS</b>	
Modulverantwortliche/r:	Nicolai Burzlaff	
Lehrende:	Nicolai Burzlaff, Andriy Mokhir, Ivana Ivanovic-Burmazovic, Norbert Jux, Frank Wilhelm Heinemann, Carola Kryschi, Olaf Prante, Karsten Meyer	
Startsemester: WS 2015/2016	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 2015/2016, Vorlesung, 2 SWS, Nicolai Burzlaff)

Seminar Bioinorganic I, Bioinorganic Reaction Mechanisms (WS 2015/2016, Seminar, 1 SWS, Nicolai Burzlaff et al.)

##### **B) Advanced Bioinorganic Chemistry (2L)**

choice of 1 course from

Bioanorganische Chemie III (WS 2015/2016, Vorlesung, 2 SWS, Nicolai Burzlaff et al.)

Bioanorganische Chemie II, Chemie des oxidativen Stresses, Spektroskopie und Elektrochemie an Bioanorganischen Systemen (SS 2016, Vorlesung, 2 SWS, Ivana Ivanovic-Burmazovic et al.)

Metallic Nanoparticles in Medicine (SS 2016, Vorlesung, 2 SWS, Carola Kryschi)

Modern X-ray structure determination of single crystals/Einführung i. d. Kristallstrukturbestimmung von Molekülverbindungen (WS 2015/2016, Vorlesung mit Übung, 2 SWS, Frank Wilhelm Heinemann et al.)

Modern X-ray structure determination of single crystals/Einführung i. d. Kristallstrukturbestimmung von Molekülverbindungen (SS 2016, Vorlesung mit Übung, 2 SWS, Frank Wilhelm Heinemann et al.)

##### **C) Special aspects in bioinorganic chemistry (1S)**

Seminar Special Aspects of Bioinorganic Chemistry (WS 2015/2016, Seminar, 1 SWS, Nicolai Burzlaff et al.)

Special aspects in bioinorganic chemistry - Seminar (SS 2016, Seminar, 1 SWS, Nicolai Burzlaff et al.)

##### **D) Lab course bioinorganic chemistry (7LAB)**

Lab Course Bioinorganic Chemistry (WS 2015/2016, Praktikum, 7 SWS, Nicolai Burzlaff et al.)

Bioinorganic Chemistry - Lab Course (SS 2016, Praktikum, 7 SWS, Nicolai Burzlaff et al.)

#### Empfohlene Voraussetzungen:

Admission to the M. Sc. program Chemistry or Molecular Science

#### 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] **Molecular Science (Master of Science): 1-3. Semester**

(Po-Vers. 2013 | Wahlmodul Molecular Science)

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**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:

PL: oral exam 45 (O45), 2 examiners EX (SL) EX (SL) LAB (SL, AP)

Calculation of the grade for the modul: Result of the oral exam (100%)

Prüfungssprache: Englisch

Erstablingung: SS 2016, 1. Wdh.: WS 2016/2017

1. Prüfer: Nicolai Burzlaff

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**Organisatorisches:**

Intended stage in the degree course: Semester 1 + 2

**Bemerkungen:**

Courses of study for which the module is acceptable: M. Sc. Chemie/ M. Sc. Molecular Science (Elective Module)