# Concepts of Molecular Chemistry 2 (iMOS)

| Module | Credits | Workload | Term | Frequency | Duration |
|---|---|---|---|---|---|
| 10 EC | 5 CP | 150 h | 2. Sem. | Each SuS | 1 Semester |

| Courses | Contact hours | Self-Study | Group size |
|---|---|---|---|
| a) Lecture<br>b) Exercise | a) 2 SWS/30 h<br>b) 1 SWS/15 h | 105 h | About 50 |

**Prerequisites**

Admission to the Master Course Program; basic knowledge general in synthetic chemistry (organic and inorganic chemistry) and the structure of molecular compounds, complexes (molecular orbitals, Lewis structures) is recommended

**Learning outcomes**

After the successful completion of the module

- Students have acquired advanced knowledge of the interpretation of the electronic structure, properties and reactivities of organometallic, inorganic molecular and solid state compounds and systems of higher and lower dimensionality.
- Students will be able to apply their knowledge independently on current, and intellectually demanding research problems in modern inorganic chemistry
- Students will be able to analyze research questions and develop solutions and solution strategies.

**Content**

The module focuses on the reactivity, properties and electronic structure of organometallic, inorganic and bioinorganic compounds. These topics may include:

- Concepts of organometallic chemistry: Stabilization of reactive intermediates, control of electronic and steric properties of ligands, applications in homogenous catalysis, trends in the periodic table
- Concepts of bioinorganic chemistry and medicinal chemistry
- Concepts in inorganic solid state and materials chemistry
- Application of spectroscopic methods for the characterization of inorganic solid state materials, molecular compounds and complexes and the elucidation of reaction mechanisms; computational methods in structure elucidation and mechanistic studies
- Modern trends in organometallic, inorganic and/or bioinorganic chemistry

**Teaching methods**

Lecture with exercises und accompanying e-learning modules

**Mode of assessment**

end-of-term written exam

**Requirement for the award of credit points**

Passing the written examination

**Module applicability**

M.Sc. iMOS; cross-posted for M.Sc. Chemistry as Inorganic Chemistry IV

**Weight of the mark for the final score**

Weighted according to CPs

**Module coordinator and lecturer(s)**

Prof. Dr. Däschlein-Gessner

V. Däschlein-Gessner, N. Metzler-Nolte, A. Devi and lecturers from inorganic chemistry

**Further information**