Module title			Abbreviation
Molecular structure and spectroscopy			08-PC-MBS-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Molekülbau and Spektroskopie"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides an introduction to the fundamental basics of molecular structure, spectroscopy and quantum mechanics. Via the particle in a box model and a quantum mechanical view of the hydrogen atom one gets to atomic orbitals, molecular orbitals and a basic understanding of the chemical bond. Molecules are analyzed based on the harmonic oscillator and the rigid rotor models. Spectroscopical focuses are UV/Vis spectroscopy, vibrational spectroscopy and rotational spectroscopy.

Intended learning outcomes

The student is able to explain basic models of quantum mechanics and to apply them on molecules. He/She can outline different spectroscopical methods.

Courses (type, number of weekly contact hours, language — if other than German)

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Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biochemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Bachelor' degree (1 major) Biochemistry (2017)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)