Course Specifications
Valid as from the academic year 2016-2017

Quantum Chemical Methods (C002962)

Course

Lecturers in academic year 2017-2018
Bultinck, Patrick

Course offerings and teaching methods in academic year 2017-2018
A (semester 1) lecture 20.0 h

Offered in the following programmes in 2017-2018

- Master of Science in Chemistry 3 A
- Exchange Programme in Chemistry (master's level) 3 A

Teaching languages
English

Keywords
Advanced quantum chemistry, Electron correlation, Density Functional theory, Reactivity

Position of the course
This course is a 2nd Master advanced quantum chemistry course, aiming at augmenting the students knowledge of advanced quantum chemistry so they are able to apply these methods independently and judge published results critically.

Contents
1 Hartree-Fock theory revisited
2 Electron correlation
3 Capita selecta of modern theories

Initial competences
Students must have acquired credit for quantum chemistry and Chemical Bond. Alternatively credits obtained for equivalent courses can be accepted where the equivalence is judged by the lecturer.

Final competences
1 Being able to judge the quality of published computational studies.
2 Being able to select the proper methods for a problem at hand.
3 Being able to apply quantum chemical techniques in a broader chemical environment.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Lecture

Learning materials and price

(Approved)
Continuous assessment during the second examination period is possible in modified form.

**Course content-related study coaching**
Interactive support via the Minerva online system

**Evaluation methods**
- continuous assessment

**Examination methods in case of periodic evaluation during the first examination period**

**Examination methods in case of periodic evaluation during the second examination period**

**Examination methods in case of permanent evaluation**
- Assignment

**Possibilities of retake in case of permanent evaluation**
- examination during the second examination period is possible in modified form

**Extra information on the examination methods**
During the course, students will have to write several reports and computer algorithms to show they master the subject. The union of all these reports are the basis for the final mark.

**Calculation of the examination mark**

**References**