Chimie physique moléculaire

Lecturers
Kristin BARTIK (Coordinator) and Nathalie VAECK

Course mnemonic
CHIM-H310

ECTS credits
5 credits

Language(s) of instruction
French

Course period
First term

Campus
Solbosch

Course content

Part A

Quantum structure of molecules

Part B

Connectivity between atoms

3D Structure of organic molecules

Structural biochemistry

Objectives (and/or specific learning outcomes)

Acquire the basic knowledges in quantum and organic chemistry with the aim to better understand the properties of molecular systems.

Appreciate and understand the importance of molecular chemistry in everyday life.

Pre-requisits and co-requisits

Pre-requisites courses

CHIM-H1001 | Chimie générales et procédés durables | 10 crédits, CHIM-H2001 | Chimie physique, matériaux et fabrication, y compris les visites d'usine | 10 crédits and PHYS-H200 | Physique quantique et statistique | 5 crédits

Course having this one as co-requisit

CHIM-H302 | Pollution du milieu physique | 5 crédits

Teaching method and learning activities

Part A (N. Vaeck)

Interactive lectures with powerpoint presentation

Question and answer seminars

Part B (K. Bartik)

Interactive lectures with powerpoint presentation

Supervised exercices with the aim of consolidating, remembering, testing and discovering theoretical knowledge

Project (by groups of 2) with final report and oral presentation

Contribution to the teaching profile

- Savoir/Faire preuve d'expertise dans le domaine des sciences et des techniques - Formuler et analyser des problèmes complexes - Adopter une démarche scientifique appliquée - Mettre en œuvre des solutions

References, bibliography and recommended reading

Organic Chemistry: structure and function, K.Vollhardt and N.E. Shore, Freeman (N.Y.)

Organic Chemistry: a biological approach, J. McMurry (2007), Thomson

Physical Chemistry : Thermodynamics, Structure, and Change, P.W. Atkins Freeman (N.Y.)

Physical Chemistry: A Molecular Approach, D.A. McQuarrie & J.D. Simon, University Science Books, 1997

Orbitals in Chemistry : A Modern Guide for Students, Victor Gil Cambridge (2000)

Course notes

Université virtuelle

Other information

Place(s) of teaching

Solbosch

Contact(s)

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Evaluation method(s)

Project and written examination

written examination

Open question with short answer and Open question with developed answer

Determination of the mark (including the weighting of partial marks)

The written exam accounts for 75%

The written report and presentation of the project accounts for 25%

The final grade is the weighted geometrical average : (exam grade)$^{0.75}$ * (project grade)$^{0.25}$

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the Brussels School of Engineering

BA-IRCI | Bachelor in Engineering Sciences | option Bruxelles/unit 3