

3 credits

22.5 h + 22.5 h

Q2

Teacher(s)	Gaigneaux Eric coordinator ;Gonze Xavier ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	<i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Evaluation methods	At the written examination, several questions of theory and problems are presented to the students. They demonstrate their knowledge by explaining the corresponding content of the course, and their ability to exploit this knowledge by solving the problems. For the spectroscopy, are more more specifically proposed exercices that require the exploitation of the features of a spectrum in order to infer the characteristics of the sample that has generated it (and vice versa : prediction of a spectrum from the sample characteristics).
Teaching methods	Magistral classes and exercices sessions.
Content	Introduction to quantum mechanics (14,5h + 14,5h): Experimental and theoretical bases. Resolution of Schrödinger equation for simple cases, with one particle (potential well, harmonic oscillator, rigid rotator, hydrogenoid atoms). Approximate treatment: polyelectronic atoms, H <sub>2</sub> <sup>+</sup> molecular ion, diatomic molecules. Molecular dynamics and chemical bonding notions. Basis of spectroscopy (8h + 8h): Distinctions between spectroscopy and spectrometry, spectroscopies of absorption vs emission. Basis of spectroscopies : rotation, vibration, libration, rotational and vibrational Raman, UVVis, XPS, resonance techniques (mostly EPR).
Inline resources	Syllabus are available on the middle of the course.
Bibliography	• Notes de cours (syllabus) disponibles sur le moodle. Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire. Les ouvrages payants qui seraient éventuellement recommandés le sont à titre facultatif.
Other infos	
Faculty or entity in charge	AGRO

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Bioengineering	<a href="#">BIR1BA</a>	3		