

3.00 credits

0 h + 60.0 h

Q2

Teacher(s)	Leysens Tom ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	<p>The course contains a practical and theoretical formation to experimental methods of physical chemistry. The aspects treated are mainly :</p> <ul style="list-style-type: none"> <li>• Thermodynamics in gas or condensed state (thermochemistry, phase equilibrium, chemical equilibrium, properties of solutions, ...)</li> <li>• Kinetics of chemical reactions (determination of reaction orders, rate constants, ...)</li> <li>• Transport properties (kinetic theory of gases, viscosity of gases and liquids, electric field effects, ...)</li> <li>• Electrochemistry (conductivity, ...)</li> <li>• Molecular properties (spectroscopies: IR, UV, ..., dielectric properties, ...).</li> </ul>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>1 The objectives of the course are to integrate and analyze in a critical way the acquisitions and treatments of experimental data necessary to study a chemical problem. Emphasis is put on the polyvalent character of techniques and methods used.</p>
Evaluation methods	<ul style="list-style-type: none"> <li>• reports</li> <li>• 1 written exam</li> <li>• laboratory behavior rating</li> </ul>
Teaching methods	<ul style="list-style-type: none"> <li>• Laboratory 8h30-5h30</li> <li>• Careful handling (products, ....)</li> <li>• Gown and glasses are mandatory</li> <li>• No smoking or eating in the lab</li> <li>• Clean everything at the end (the end = after you have interpreted your results)</li> <li>• Syringes vs. pipettes</li> <li>• Help your classmates in the morning / interactive learning by explanation</li> </ul>
Content	<ul style="list-style-type: none"> <li>• Physical chemistry = why a change (chemical/physical).</li> <li>• Different from other labs / we aim to understand the concepts you have seen.</li> <li>• Data collected in the lab are to be interpreted to understand the physical/chemical phenomena.</li> </ul> <p>In an ideal reality, the approach would be :</p> <ul style="list-style-type: none"> <li>• Problem</li> <li>• Identify the questions it raises</li> <li>• Develop relevant experiments in view of these questions</li> <li>• Carry out these experiments and collect data</li> <li>• Interpret the data</li> <li>• Formulate answers/answers to the initial questions</li> <li>• Review the initial problem</li> </ul>
Inline resources	Explained labs available on moodle.

<p>Other infos</p>	<p><u>Interpretation of the results</u> :</p> <ul style="list-style-type: none"> <li>• On computer</li> <li>• End of day report or sheet with results (by mail)</li> <li>• Tools learned in statistics class (confidence intervals/prediction, CS, regression, ... )</li> </ul> <p><u>Report</u> :</p> <ul style="list-style-type: none"> <li>• 1 per group/ heading: Names; Group nr, Dte, Session nr, Title)</li> <li>• Report writing is important and crucial in these labs.</li> <li>• Learning: COMMUNICATE YOUR RESULTS</li> <li>• 4 parts (principle and goals; measured quantities, experimental results, interpretation !!!!!!!).</li> <li>• Comparison with literature (database, NIST, Handbook of Physics, ...). Mention where you find these data.</li> <li>• Value does not have to be exact, but explain well why, ... Reflect on your results.</li> <li>• No lab notebook to hand in (notebook = personal)</li> <li>• Pay attention to the units</li> <li>• 4/5 pages</li> </ul>
<p>Faculty or entity in charge</p>	<p>SC</p>

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Chemistry	CHIM1BA	3		