

## Chemistry

### Questionnaire for academics

Specific Competences	Importance for First Cycle	Importance for Second Cycle
	None Weak Considerable Strong 1 2 3 4	None Weak Considerable Strong 1 2 3 4
1. Ability to apply chemistry knowledge and understanding to the solution of qualitative and quantitative problems of an unfamiliar nature	-----	-----
2. Ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems of a familiar nature	-----	-----
3. Ability to conduct risk assessments concerning the use of chemical substances and laboratory procedures	-----	-----
4. Ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the subject areas identified above	-----	-----
5. Ability to interpret data derived from laboratory observations and measurements in terms of their significance and relate them to appropriate theory	-----	-----
6. Ability to recognise and analyse novel problems and plans strategies for their solution	-----	-----
7. Ability to recognise and implement good measurement science and practice	-----	-----
8. An in-depth knowledge and understanding of an specific area of chemistry	-----	-----
9. Awareness of major issues at the frontiers of chemical research and development	-----	-----
10. Communication skills, covering both written and oral communication, in at least two of the official European languages	-----	-----
11. Competence in the planning, design and execution of practical investigations, from the problem recognition stage through to the evaluation and appraisal of results and findings; this to include the ability to select appropriate techniques and procedures	-----	-----

Specific Competences	Importance for First Cycle	Importance for Second Cycle
	None Weak Considerable Strong 1 2 3 4	None Weak Considerable Strong 1 2 3 4
12. Computational and data-processing skills, relating to chemical information and data	-----	-----
13. Information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches	-----	-----
14. Information-technology skills such as word-processing and spreadsheet use, data-logging and storage	-----	-----
15. Internet communication, etc.	-----	-----
16. Interpersonal skills, relating to the ability to interact with other people and to engage in team-working	-----	-----
17. Major aspects of chemical terminology, nomenclature, conventions and units	-----	-----
18. Major synthetic pathways in organic chemistry, involving functional group interconversions and carbon-carbon and carbon-heteroatom bond information	-----	-----
19. Numeracy and calculation skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units	-----	-----
20. Problem-solving skills, relating to qualitative and quantitative information	-----	-----
21. Skills in presenting scientific material and arguments in writing and orally, to an informed audience	-----	-----
22. Skills in the evaluation, interpretation and synthesis of chemical information and data	-----	-----
23. Skills in the monitoring, by observation and measurement, of chemical properties, events or changes, and the systematic and reliable recording and documentation thereof	-----	-----
24. Skills in the safe handling of chemical materials, taking into account their physical and chemical properties, including any specific hazards associated with their use	-----	-----
25. Skills required for the conduct of standard laboratory procedures involved and use of instrumentation in synthetic and analytical work, in relation to both organic and inorganic systems	-----	-----

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	None Weak Considerable Strong 1 2 3 4	None Weak Considerable Strong 1 2 3 4
26. Study skills needed for continuing professional development	-----	-----
27. The characteristics properties of elements and their compounds, including group relationships and trends within the Periodic Table	-----	-----
28. The characteristics of the different states of matter and the theories used to describe them	-----	-----
29. The kinetics of chemical change, including catalysis; the mechanistic interpretation of chemical reactions	-----	-----
30. The major types of chemical reaction and the main characteristics associated with them	-----	-----
31. The nature and behaviour of functional groups in organic molecules	-----	-----
32. The principal techniques of structural investigations, including spectroscopy	-----	-----
33. The principles and procedures used in chemical analysis and the characterisation of chemical compounds	-----	-----
34. The principles of quantum mechanics and their application to the description of the structure and properties of atoms and molecules	-----	-----
35. The principles of thermodynamics and their applications to chemistry	-----	-----
36. The properties of aliphatic, aromatic, heterocyclic and organometallic compounds	-----	-----
37. The relation between bulk properties and the properties of individual atoms and molecules, including macromolecules	-----	-----
38. The structural features of chemical elements and their compounds, including stereochemistry	-----	-----
39. Other (specify)	-----	-----
40. Other (specify)	-----	-----
41. Other (specify)	-----	-----