eLearning Course

Chemistry for the Non-Chemist

Learn chemistry in six information-packed modules

In this structured eLearning course, spanning six distinct modules, you'll be given a solid introduction to chemistry. Written by experienced lecturer Laura Robinson, this eLearning course will provide you with a basic understanding of some of the most common physicochemical terms used in the prediction of likely exposure routes and hazardous effects; not only for human health but also for environmental fate and effects. What's more, expanding your knowledge of chemistry will help you with the identification of structural alerts, the use of appropriate read across and mechanisms of action.

www.chemicalwatch.com/chemistry-elearning

Chemical Watch

Learning outcomes

This informative eLearning course clearly explains:

- Atomic structure
- Chemical bonding
- Chemical categories and nomenclature
- Organic chemistry
- Physicochemical properties
- Chemistry in action

You will learn how to identify important hazard properties, such as pH and its link with corrosivity, and important exposure routes, including the use of water solubility and Log Kow for predicting absorption, as well as environmental transport and fate.

Our trainees

Chemistry for the Non-Chemist is joining our growing portfolio of eLearning courses which has already helped over 1100 professionals gain confidence in understanding the adverse effects of chemicals on humans and the environment. Trainees on our popular courses such as The Beginner's Guide to Toxicology and The Practical Guide to Ecotoxicology and the Environment have included professionals from the following companies:

The Walt Disney Company, BASF The Chemical Company, Johnson & Johnson, P&G, ECHA European Chemicals Agency, Dow, Hasbro, LEGO, 3M, AkzoNobel, European Commission Joint Research Centre, TATA, Estée Lauder Companies, DuPont, Colgate-Palmolive, Home Office, Bureau Veritas, IKEA

Key benefits of taking this eLearning course

Informative, convenient & easy to use

- Hours of valuable training filled with up-to-date chemistry data – helping you master the key points and concepts of chemistry.
- The course is easy to pick up where you left off – enabling you to study at your own pace.
- Runs on PC, Mac, tablet and smartphone – allowing you to study at work, from home or on the go, fitting your training conveniently around your busy schedule.
- No travel required – making it a time-efficient training resource that keeps your and your team's travel commitments and expenses down.

Appeals to a wide range of learning styles

- Using a mixture of traditional and modern learning methods in tandem with pages of rich content, audio and video explanations, module-specific quiz questions, an extensive glossary of terms and six module handouts.
- Extensive glossary of terms – helping you decipher key terminology.
- Six course note handouts – for further reading and to help you revise the material on and offline.

Measurable outcomes

- Self-assessment quiz questions – help you measure whether you've met the learning objectives for each section of the course, giving instant feedback on your progress.

Affordable learning

- Low per-trainee prices and attractive group rates ensure you maximise returns on your training budget. Initial single place cost: **€350 (£310/$435)**

Modules

Part 1

MODULE 1: ATOMIC STRUCTURE

- Explain what is meant by element, atom, substance, compound, mixture and impurities.
- Describe the structure of an atom including the difference between protons, electrons and neutrons.
- Explain what is meant by electronic structure, valence and its impact on bonding.
- Outline the function of the periodic table and how it can be used.
- Explain the difference between chemical symbols and chemical formulae.

MODULE 2: CHEMICAL BONDING

- Describe the differences between covalent, ionic and metallic bonding & their common properties.
- Explain what is meant by electronegativity and its impact on bonding and chemical properties.
- Identify the types of bond which are likely to be present in a compound.
- Explain what is meant by intermolecular force, how this differs from covalent/ionic/metallic bonding and how it impacts physical properties (e.g. boiling point, etc).

Part 2

MODULE 3: CHEMICAL CATEGORIES AND NOMENCLATURE

- Outline what is meant by IUPAC and CAS registry number and how they are used.
- Explain the difference between inorganic substances and compounds.
- Explain what is meant by 'chemical formula' and how it is used.
- Outline the approach which is taken to naming ionic and covalent inorganic compounds and the exceptions to this approach.
- Describe the key properties of metals and how metal ions are formed.
- Explain what is meant by speciation and its significance to human health and the environment.
- Outline the issues surrounding the use of the term 'heavy metal'.
- Explain what is meant by polymer, nanomaterial and UVCB.

MODULE 4: ORGANIC CHEMISTRY

- Explain what is meant by the term organic chemistry and the key properties of carbon we need to be aware of.
- Outline the significance of polar bonds in organic chemistry.
- Explain what is meant by hydrocarbons and saturated and unsaturated bonds.
- Outline the basic approach to naming organic chemicals.
- Explain what is meant by functional group and how knowledge of these can help in predicting the likely chemical reactions and other properties.
- Explain how structural alerts are used in predictive toxicology/ecotoxicology.
- Explain what is meant by molecular and structural formula and how these can be represented.
- Explain how intermolecular forces can help us predict the likely boiling points and solubilities of organic chemicals.

Part 3

MODULE 5: PHYSICOCHEMICAL PROPERTIES

- Outline how physicochemical data can be used in our everyday work.
- Define the terms solid, liquid and gas.
- Explain what is meant by change of state and how we can predict the likely physical form at a given temperature.
- Explain the significance of physical form in the context of inhalation.
- List and define the most common physicochemical properties.
- Outline how knowledge of such information can be used in toxicology and ecotoxicology and also safe handling and use in the workplace.

Part 4

MODULE 6: CHEMISTRY IN ACTION

- Explain what is meant by chemical reaction and how these are represented with examples (i.e. chemical equations).
- Outline what is meant by hydrolysis, neutralisation and oxidation and how knowledge of these reactions can be used.
- Describe the relationship between metabolism and chemistry.

Who is this course for?

This eLearning course is applicable to any global chemical control regulation. It is designed for anyone who works in the chemical and allied industries and needs a better understanding of chemistry and its application. This includes:

- Regulatory affairs (chemical registration work)
- Authors and recipients of safety data sheets (SDS)
- Anyone involved in classification and labelling in accordance with EU CLP/GHS
- Regulatory authorities
- Health and safety professionals
- Occupational health professionals
- Toxicologists and ecotoxicologists
- Laboratory staff
- R&D staff with limited chemistry background
- Business managers involved in consortium meetings
- Sales and marketing teams who would like to learn more about basic chemistry.

€350

Attractive group rates for multiple trainees are also available:
please give us a call on: +44 (0)1743 818292 or email cw.sales@chemicalwatch.com
Coming soon – www.chemicalwatch.com/chemistry-elearning