

Scientific Update Training Courses 2008

An Introduction to Organic Chemistry

For Chemical Engineers and Other Scientists

The Course

The modern chemical industry is a multidisciplinary environment. Chemists, chemical engineers, material scientists and statisticians must collaborate to produce a vast array of chemicals efficiently, safely and without damage to the environment. Experts are recruited from distinct disciplines, often with little knowledge of other aspects which have a vital bearing on the success of their work.

This course is an evolution of the very successful Scientific Update Course 'Basic Organic Chemistry' and aims to bridge some of the knowledge gaps in the industry by providing a basic introduction to the principles of organic chemistry suitable for chemical engineers and other scientists. It covers the fundamental concepts of three-dimensional molecular structure, nomenclature, reactivity, functional groups as well as a basic inventory of synthetic reactions. It provides an insight into the thinking of the organic chemist and clarifies how the synthetic processes are conceived and developed. The principles are illustrated with current case studies to emphasise how they are translated into industrial processes and reinforced with a series of tutorial problem sessions.

A comprehensive course manual will be provided containing copies of all slides, together with explanatory notes for later revision and references to more detailed texts and original literature.

Outline

Day One: Molecular Structure and Nomenclature

Atomic structure and chemical bonding

Simple functional groups

Isomerism in organic chemistry:

Structural isomers

Stereoisomers

Enantiomers

Organic acids and bases

Problem sessions & discussions

Day Two: Basic Principles of Organic Synthesis

Nucleophilic displacement reactions

Nucleophilic addition reactions

Electrophilic reactions

Reactions of aromatic compounds

Problem sessions & discussions

Day Three: Further Aspects of Organic Synthesis

Carbon – carbon bond formation

Oxidation and Reduction in organic chemistry

Case studies in chemical process development

Problem sessions and discussion

Tutors



Derek Robinson gained his PhD in Physical Organic Chemistry from the University of St. Andrews in 1981. After completing two years post doctoral research at the University of Strathclyde, he joined the Pharmaceutical Research and Development group at Parke-Davis/Warner Lambert. During the next eleven years he was responsible for the development and optimisation of synthetic routes to novel drug candidates, organising the scale-up to pilot plant and transfer to production facilities. He was manager of synthetic chemistry laboratories at Pontypool, Wales and Freiburg, Germany. Since 1995 he has been an associate lecturer at Scientific Update. Derek has developed courses on Good Manufacturing Practices (GMP), Basic Organic Chemistry for Chemical Engineers and Statistical Experimental Design for Chemists. He also tutors the Chemical Development in the Fine Chemical and Pharmaceutical Industries course. He has also worked with fine chemical companies to help develop documentation procedures and GMP training courses. He can be contacted by email: derek@kolvox.net



Will Watson gained his PhD in Organic Chemistry from the University of Leeds in 1980. He joined the BP Research Centre at Sunbury-on-Thames and spent five and a half years working as a research chemist on a variety of topics including catalytic dewaxing, residue upgrading, synthesis of novel oxygenates for use as gasoline supplements, surfactants for use as gasoline detergent additives and non-linear optical compounds. In 1986 he joined Lancaster Synthesis and during the next 7 years he was responsible for laboratory scale production and process research and development to support Lancaster's catalogue, semi-bulk and custom synthesis businesses. In 1993 he was appointed to the position of Technical Director, responsible for all Production (Laboratory and Pilot Plant scale), Process Research and Development, Engineering and Quality Control. He helped set up and run the Lancaster Laboratories near Chennai, India and had technical responsibility for the former PCR laboratories at Gainesville, Florida. He joined Scientific Update as Technical Director in May 2000. He has revised and rewritten the "Chemical Development and Scale Up in the Fine Chemical & Pharmaceutical Industries" course and gives this course regularly around the world. He has been instrumental in setting up and developing new courses such as "Interfacing Chemistry with Patents" and "Making and Using Fluoroorganic Molecules". He is also involved in an advisory capacity in setting up conferences and in the running of the events. He is active in the consultancy side of the business and sits on the Scientific Advisory Boards of various companies. He can be contacted by email: will@scientificupdate.co.uk

Who Should Attend?

The course is designed for all **engineers and scientists in industry who work with organic chemical processes** and who need a basic understanding of this fascinating and complex subject.

Participants should have some basic grounding in general chemistry, but no previous knowledge of organic chemistry is necessary.

Fees

Fee includes lunch & refreshments, course dinner and course manual.

Accommodation

Scientific Update use high quality venues around the world. Preferential room rates including bed & breakfast are usually available.

Please check the Course Schedule on our website for venues, dates and availability.