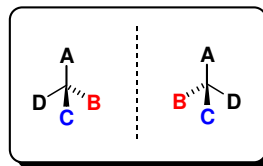# Chemistry I (Organic): Stereochemistry

Overview

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Aims

To provide an introduction to the shapes of organic molecules and the basic princlples and nomenclature of stereogenic elements in organic molecules.

Summary

Molecular shape, symmetry and stereogenicity/chirality are central concepts to chemistry. They allow us to understand the spectroscopic properties of molecules and their reactivity with other molecules including large biopolymers (*e.g.* protein and nucleic acids *etc.*). This course will introduce and review these fundamental concepts and extend the ideas presented by Dr E. H. Smith in the 'symmetry workshop' (Autumn term). The course material should provide an underpinning for *all* the organic courses and also Dr C. Williams' spectroscopy course (Spring term).

Objectives:

On completion of this course you should be able to:

- destinguish chiral molecules from achiral ones.
- assign (*R*)- and (*S*)-descriptiors to stereogenic centres in chiral molecules.
- appreciate the difference between enantiomers and diastereomers.

Course delivery (3 lectures)

Lecture 1: will examine hybridisation and shape; stereogenic centres and other stereogenic elements in enantiomers.

Lecture 2: will cover Fischer projections, (*R*)/(*S*)- notation and Cahn-Ingold-Prelog priority rules.

Lecture 3: will introduce diastereoisomers, epimers and *meso* stereoisomers.

Reference material

The following texts both contain information pertinent to the course content.

J. Clayden, N. Greeves, S. Warren and P. Wothers, *Organic Chemistry*, Oxford University Press, **2001**.
E.L. Eliel, S. H. Wilen, *Stereochemistry of Organic Compounds*, Wiley-Interscience, **1994**.

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